Amateur Radio

February 1998
Volume 66 No 2

Journal of the Wireless Institute of Australia

IN THIS ISSUE:

- SSB by the Fourth Method
- Simple Transmission Monitor and Interference Sniffer
- WIA Awards and DXCC
- Review of the Yaesu FT-8100R Dual Band FM Mobile Transceiver

Plus *lots of other articles, opinions and special interest columns*

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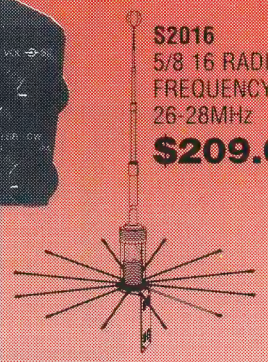

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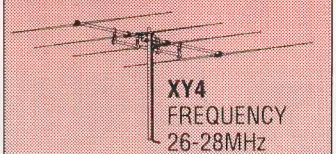

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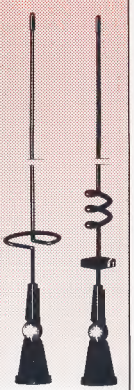

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Cover

Official NASA photo of Australian astronaut Dr Andrew (Andy) Thomas KD5CHF/VK5MIR who is now aboard the Russian space craft MIR (see QSP News item on page 32).

BACK ISSUES

Available direct from the WIA Federal Office, only until stocks are exhausted, at $4.00 each (including postage within Australia) to members.

PHOTOSTAT COPIES

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The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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■ Comment

Editor's Comment

"Herding Cats"

This delightful phrase was used in a letter to me from David Horsfall VK2KFU. It was in the context of uniformity, or its lack, in standardising low-voltage plugs and sockets (the dreaded T-plug mentioned in several recent issues). David's words were, *"Given that organising amateurs is akin to herding cats, I doubt whether there'll be any consensus . . ."*

David may well be right as far as "standard" plugs are concerned, but I sincerely hope he is wrong as regards the future of the WIA or even amateur radio in Australia. One of the biggest problems plaguing the WIA over the last decade has been the divergence of opinions both among members and between Divisions. This has had the result of splitting us into fragments, each pointing in different directions; "a herd of cats" indeed! Because of this, many potential members decide not to join the WIA, and our diminishing numbers become even less effective.

Could it be that what is needed is more of the herd mentality, more of "follow the leader", provided the leader appears to know where the path is leading. Otherwise we may "wait until the cows come home" before any progress occurs!

Bill Rice VK3ABP
Editor

CONTRIBUTIONS TO *AMATEUR RADIO*

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk or via e-mail are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. A pamphlet, *"How to Write for Amateur Radio"*, is available from vk3br Communications Pty Ltd on receipt of a stamped, self addressed envelope.

■ Comment

Over to You

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

The Customer Is Always Right!

In the September 1997 issue of *Amateur Radio*, I advocated changes to make the WIA a more efficient and effective organisation. Responses were published from Chris Lowe VK6BIK (November) and Neil Penfold VK6NE (December).

Neil's letter shows that the WIA has a fair way to go before it can regard itself as a customer-focused organisation that delivers services members want. In one sentence he dismisses the possibility that organisational factors may be causing some people to not renew. His solution to our membership woes? For each member to keep their membership current and recruit new ones. However, because membership is voluntary, people cannot be forced to do as Neil suggests. Rather, we need to make the WIA an organisation whose product is so good that almost every amateur will want to join.

The WIA is a customer service organisation operating in a competitive market. Many other clubs and businesses are competing for your dollar. But if business is down, you can be sure that they don't whine that it's because not enough people are coming through the door. They already know that! Instead, they ask themselves *why* they are not attracting custom, seek to offer products people want, and promote themselves better. If there are things about their organisation that hinder the ability to provide good customer service, they change them!

Instead of blaming members for not renewing, WIA office-bearers should continually ask themselves how member services can be improved. Running competitions to attract new members is fine, but before we try to market ourselves we need to ensure that the services offered are what people want. The continuing loss of membership demonstrates that we are failing to meet some members' needs.

Restructuring the WIA along the lines suggested will not necessarily cure WIA Federal's budget ills. However, if it leads to a better use of member funds and volunteer time, much good will have been done.

A major hidden cost of the current structure is in volunteer time, especially at Divisional level. If Divisional Councillors could be relieved of the duties of attending dreary Council meetings or handling membership records (where any slip-up could lose a member for life), maybe they'd have more time for providing real services like running broadcasts, building repeaters, and promoting amateur radio. Leave the paperwork to a professional Federal Office, and transfer Divisional responsibilities to either the Federal body or affiliated clubs.

Let's take one example of duplicated effort. At the moment, most WIA Divisions have an Internet Web page, which has taken many hours of volunteer time to create. However, there is no official Federal web page. The result is a very fragmented presence on the Web with information on some Federal services impossible to find. A reformed national WIA would have just one Web page, which would greatly assist publicity efforts. In December's *Amateur Radio*, ZL2ALJ asks if the WIA (Federal) has a Web page, and if contest results could be posted on it. That's just one example of what could be done on a national Web site. Furthermore, all this could be achieved with a fraction of the volunteer time currently required to maintain six separate Divisional Web sites.

Why have I paid so much attention to the proper use of volunteers' time? The answer is simple. Volunteers deliver most WIA services. A shrinking volunteer base means a diminishing capacity to deliver services to members. This can only mean accelerated membership loss, as more people find fewer benefits in WIA membership. And, don't kid yourself, it's already happening; the downgrading of the VK3 broadcast from a weekly to a monthly service is a prime example. Volunteers don't grow on trees, and if we don't try to make the best use of what we have, we will not succeed.

So to Neil, and others who agreed with him, please remember that "the customer (member) is always right", and you won't go too far wrong!

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Reply to President

The response of the Federal President to recent correspondence on Federal affairs needs to be revisited.

With regard to policy and planning, Neil must have a different understanding of the meaning of these terms: "policy" is a course or principle of action proposed or adopted; "planning" is the detailed method by which a thing is to be done.

Neither of these definitions applies in any meaningful way to the future direction of amateur radio as expressed by WIA Federal – the sins of omission that I referred to in my earlier letter (September *Amateur Radio*).

To be sure, licensing submissions, emergency services, electromagnetic compatibility standards and the like – the nuts and bolts of amateur radio – are specific outcomes of related policies and some planning, germane to the operating standards and other peripheral activities of a technical hobby, but they are NOT policies and planning as a result of intense consideration of the philosophical aspects of amateur radio, eg, where the hobby is or should be going and how it sees itself long/short term, assuming that it is still a technical interest with a scientific background. A revamp of the definition of amateur radio and qualifications of amateur operators may help to explain what it's about after one has worked out what it is, but it's not planning or policy in the sense of defining future directions.

Again, the platitudes trotted out on command to government ministers, et al – how we are a valuable resource etc, etc – are little different from the speeches we made 30 years ago on similar occasions. Useful PR and reinforcement of aims but not a statement of what amateur radio is/will be/or could be.

National and international representation will have little meaning or relevance if the implications of technical change, social interaction, and competing interests are not addressed and solutions found. In the near future, amateur radio may be as relevant as the Mechanics Institutes are today as a means of technical education – fine in the late 1800s, but....

Contrary to what Neil says, I have previously made a case for a different organisational model in relation to WIA Federal. It was submitted (March 1997) to Editor, Divisional Councillors AND the Federal President, but because there appears to be a built-in discriminatory policy of censorship or "active filtering", it was neither published nor acknowledged, the rationale being, apparently, that contentious matters may reflect adversely on Council or

steal its thunder – shades of George Orwell, or Fahrenheit 451.

However, the comments made were as follows:

We have, at present:

1. Federal Council, setting policy presumably, which meets every three months;
2. Federal Executive, appointed by Council, whose directors assist in implementing policy modus operandi unknown;
3. A Federal Secretary in Sydney;
4. A Federal Office in Melbourne;
5. A Federal President in Perth.

Electronic communication is fine, to a point, but how can any CEO, geographically divorced from support staff, operate effectively?

Would it be too much to ask that a fundamental inquiry be undertaken to examine the relevance of the Institute to members and to regulatory authorities; and indeed, whether amateur radio, as we currently know it, has any relevance in 2000 and beyond, and if not, what changes should be made?

Assuming the latter point has some meaning, the ramifications of the Institute and its Divisions agreeing to change should be considered.

Some suggestions:

A. Absorption of the Divisions and their resources to establish a properly funded company, suitably staffed with a CEO accountable to a Board for implementation of policy;

B. This company should have income generating interests (eg, computing, communications).

The present system and its administration are outmoded, depend too much on voluntary labour and income almost solely derived from subscriptions, which are, or will become, less cost effective for benefits obtained, especially as costs and technology escalate. The administration required today is more complex and needs better qualified, full-time people to manage the organisation.

Finally, a comment on finances. Membership drives are only part of the story – necessary, but never enough to provide a lasting 'fix'. Have a look at the figures: a $44,000 loss by WIA Federal will, on my calculations, mean that the breakeven point would require an additional 950 members, plus those needed to replace defections and SKs.

Admirable though the reciprocal agreements are, and promotion of amateur radio might be, in developing countries, is the level of expense and administrative activity providing value? Can some financial assistance be obtained from other sources? Could one be bold enough to suggest that manufacturers of amateur equipment and accessories have a vested interest in seeing amateur radio develop internationally as well as at home, but are not helping the acquisition of new devotees?

It could be said that that WIA, ARRL, RSGB, etc spend considerable sums promoting amateur radio in their jurisdictions; in fact, marketing amateur radio on behalf of equipment manufacturers. Why should they not provide some "sponsorship" in return?

There are very few known donations or sponsorship from manufacturers in Japan or anywhere else. The meaning of the word "amateur" may well be uppermost in the minds of some manufacturers, who therefore believe that they should not contribute, but perhaps this needs to change, as it has in sport.

In conclusion, communication and technical prowess are what amateur radio is supposed to be about; yet, administratively and electronically, it seems to have lost its way – like a lost ship hooting forlornly to other lost ships in a fog of obscured purpose.

Peter D Williams VK3IZ
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Metung VIC 3904

Need for Change

As a new member of the WIA (1997) I have been reading with interest the correspondence to the Editor regarding the need for change to the WIA. To gain further information on the subject I have gathered back copies of *Amateur Radio* and other Australian radio magazines. I am particularly interested in what happened to 'The 10 Year Plan'? From my reading of members' comments, it would seem the organisation could be placed in the category of a dinosaur with an urgent need to refocus and reorganise.

I was very concerned that members' suggestions for structural reorganisation were flippantly passed over without serious examination by the Executive body. This either suggests a narrow-minded belief that all is currently okay or unwillingness by the executive to look at possible changes.

We are fast approaching the new century. To survive we need a dynamic, trim, efficient and cost effective organisation. New members are only attracted to such a body.

To achieve this order of efficiency, we need good management that understands and listens to the needs and requirements of the majority of our membership. At a recent gathering of amateurs these needs were discussed, and a brief summary follows:

1. To have our hobbies' best interests represented and fought for in the political arena:
   a) ACA (Australian Government); and
   b) ITU, etc;
2. Conduct regular news broadcasts;
3. Reasonable (low) membership fees;
4. Produce *Amateur Radio*;
5. Unobtrusive, efficient and effective management that allows me to pursue my hobby (indicating the membership is tired of the current management/ mismanagement and infighting, and would prefer to focus on our hobby); and
6. An understanding that amateur radio is a hobby.

Amateur radio is our hobby and we need an effective well-run national body to ensure we do not become a dinosaur or end up as a museum exhibit. I would encourage members to contact their state Council and let them know your views. Change can be initiated starting from this level. Encourage your State Federal Councillor at the next Federal Convention to reflect your views. It is a pity there is not a member vote for all Federal Executive and Council officers, as this may solve some of our problems!

Jim McLachlan VK5NB
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Morse Speed

All amateurs are aware of the pivotal part which CW played in the establishment of radio communications and amateur radio as a hobby.

The expert practitioners of the art have always held a pre-eminent position and have derived great satisfaction in their preferred method of communication. The necessity for Australia amateurs to support our commitments to international agreements to require the ability to send and receive messages in Morse code for access to all HF bands is well established.

However, when the recent vote was taken on the issue, HOW MANY WERE AWARE THAT NO SPEED IS REQUIRED?

The logical outcome of this is that it is well within the rights of Australian amateurs to fulfil the requirements for a full call ticket at FIVE WORDS PER MINUTE!

This should be implemented immediately for the good of amateur radio. The upgrade 4

4of all the relevant licences would provide a surge of enthusiasm which our hobby desperately needs without any fear of an influx of 'yobbos' or undesirables which seems to worry many old-timers.

I appeal to all amateurs to support this change in support of the future good of our important hobby.

W B Weiley VK2AZW
13 Bourne Boulevard
Nelson Bay NSW 2315

Alternatives to Morse

Unfortunately, there are too many amateurs who will ardently defend Morse until they pass on; and, until they do, they will not allow the organisation that represents us (Wireless Institute of Australia – WIA) to make representations to have the Morse requirement for HF removed at the ITU-R World Administrative Radio Conference.

I feel it is something to do with "I am better than you" because I can copy Morse for these people. As an examiner for amateur radio, I view Morse as a practical test that you could operate a radio and make a communication in the early 1900s; however, as a practical test today, it bears no relevance to real efficient communication.

I favour the introduction of some more relevant practical tests which could be optionally substituted for the Morse component of the AOCP. For example, fault finding a transmitter/communication system which is faulty. If you can fix it, or correctly diagnose the solution in the time allowed, then you pass the "Practical". The Regulations and Theory would remain the same.

To really stir the pie and weed out the stalwarts, we could RE-EXAMINE ALL AMATEURS EVERY FIVE YEARS with the current syllabus and re-allocate the certificates of proficiency accordingly. This would ensure that amateurs keep up-to-date and continue to experiment.

Unfortunately, there are too many black box operators out there!

I continually hear things like, "If I pull the cover off it will void the warranty!". From the average person this would be OK, but I am saddened to hear it over and over again from "qualified amateurs"!

I am sure the re-examination might reduce the number of amateurs considerably since many simply would not pass. Some may see this as bad, but it would concentrate amateurs on experimenting with current communications technology, which is largely not happening now. Unless something is changed in a way that encourages keeping up to date, the amateur service will continue its slide into irrelevance and its ultimate demise.

Since this re-examination would be very unpopular, it could never be put up by the WIA; however, the ACA could make the changes.

Neil Pickford VK1KNP/VK7KNP
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Novice CW Segments

The week-end of 13/14 December featured the ARRL 10 metre contest and I listened out on the low end of the band. ie 28,000 to 28,100 kHz. As we Novices know, this section of the band is taboo to us.

However, it was interesting to hear the number of CW operators, mostly American, some J stations and two ZLs, but no, repeat no, VKs – at least not at the times I listened. All operators were expert in CW, with sending speeds ranging between 15 and 30+ wpm. So, I concluded that CW is not the dying art as some – in the words of (SK) VK2PA "lip flappers" – SSBers – would have us believe.

This leads me to the question: if the "powers that be" could open the 15 m band from 21,200 to 21,300 kHz to accommodate SSB, could they not give similarly to the Novice CW operators on the 10 m band, by opening the CW end of that band, as there are some excellent CW ops on DX that I, for one, would like to QSO with.

Don't say, "well, get your full call". I am 76 years old next month and I have been doing CW since I was nine years old. Theory is not my prize subject, and I do not intend to give my love of the Morse code away at this stage in life.

Lloyd Collier VK2VZB
7 Whitmont Crescent
St Ives Chase NSW 2075

Still More on T-Plugs

Regarding those ubiquitous "T" connectors, there is an industry standard as to how they should be wired.

They were originally used by the Japanese automotive industry and, if you have a veteran Toyota Celica (1972) like me, you will find them used in the harnesses for lighting, etc. The bar of the T is negative and the upright is the positive; this is the logical view as they are called "T" connectors. Those of us who have had to replace a windscreen washer bottle will note they are standard fittings on those as well, which plug straight into the harness.

When I salt-mined, a company I worked for serviced the State Emergency Radios. You guessed it, the horizontal bar was always negative.

Thought of the day! If there is an option, you can be sure someone will take it.

Dave Smithdale VK6DX
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ar

TIME TO DEFEND YOUR BANDS AND HARD-WON PRIVILEGES

420-450 MHz is wanted by Australian commercial interests

RF emission regulations threaten handhelds, mobile rigs, and suburban home stations, with bureaucratic limits

More of **7 MHz** is wanted by global broadcasters

RENEW YOUR MEMBERSHIP RECRUIT NEW MEMBERS

WIA action has: ■ cut the cost of licence fees, ■ cut fees on beacons and repeaters, ■ improved licence conditions, ■ retained access to 50 MHz and 576 MHz; and more.

The WIA maintains representation at World Radio Conferences, and at home, to the ACA and on the Radio Communications Consultative Council. **Strength in numbers. Subs help pay.**

WIRELESS INSTITUTE OF AUSTRALIA

YOUR HOBBY **YOUR VOICE**

WIA News

Roger Harrison VK2ZRH,
Federal Media Liaison Officer

WIA Revives Submission for LF Band Allocation

The WIA-ACA Liaison Team is to prepare and submit a new proposal for an amateur band allocation in the low frequency spectrum below 200 kHz.

The Australian Radiofrequency Spectrum Plan, the instrument under the Radiocommunications Act which governs the allocation of the spectrum between 9 kHz and 400 GHz in Australia, is presently under revision with the new Spectrum Plan to be gazetted in January 1999. The last revision was gazetted in January 1997, replacing the April 1995 issue.

The WIA's move follows the allocation to European radio amateurs of 135.7-137.8 kHz by the Conference of European Post and Telecommunications (CEPT), also to be available to UK amateurs later this year.

Previous applications by the WIA for an LF band allocation focused on 160-190 kHz, which is allocated in Australia to the Fixed service, with Aeronautical Radionavigation having a secondary allocation. These allocations apply throughout ITU Region 2 (the Americas) and Region 3 (Asia-Pacific).

New Zealand General Class amateurs have been permitted since 1990 to use 165-190 kHz on a non-interference to other services basis. In recent years, a number of Australian amateurs have conducted experiments in this band, but had to obtain a Scientific licence in order to do so. Contacts over 2000-2500 km have been made between New Zealand amateurs and these Scientific-licensed stations held by amateurs in Australia.

Four Australian amateurs currently hold Scientific licences in the LF spectrum below 200 kHz, three with frequency allocations on 196 kHz, and one on 177.5 kHz. It costs more than $200 to have a Scientific licence issued for a single transmitting frequency, but renewal is less than $40.

A search of the Australian Communications Authority's licence register reveals only six frequency assignments between 100 kHz and 200 kHz, to a total of nine licensees, not counting the Radionavigation assignments 100 kHz and 200 kHz. The assignments are at 105 kHz, 135.12 kHz, 158.12 kHz, 160 kHz, 177.5 kHz, and 196 kHz. The licence for the 160 kHz assignment, held by Texas Instruments and relating to their TIRIS traffic information system, expired last year and had not been renewed as of January.

Apart from the 177.5 kHz and 196 kHz assignments held by amateurs, the three remaining assignments are licensed to General Motors Holden Australia (GMHA) in Elizabeth, South Australia, for operation at single, fixed sites, not Australia-wide.

Nine band allocations in the Australian Radiofrequency Spectrum Plan cover the 100-200 kHz spectrum, generally for Radionavigation, Fixed, Maritime Mobile and Aeronautical Radionavigation. They are generally consistent with Region 2 and Region 3 ITU allocations and, in some instances, Region 1. For all of these services, LF technology is being replaced by newer systems on other frequencies, so this usage of this sector of the LF spectrum has declined. There are no current aeronautical or maritime radio navigation assignments between 105 kHz and 196 kHz.

In view of the European allocation at 135.7-137.8 kHz, and the 165-190 kHz amateur operations permitted in New Zealand, coupled with very low remaining use of LF allocations, the WIA is seeking to have Australian amateurs permitted access across 100-200 kHz, with guard bands protecting 100 kHz, 105 kHz, 135.12 kHz, 158.12 kHz and 200 kHz.

As there is no commercially produced LF amateur equipment, such an LF allocation would of necessity encourage home construction and experimentation by amateurs. Australian amateurs could draw on the experiences of European amateurs at 135 kHz as well as the past Australian and New Zealand amateur experiments at 165-196 kHz, and could contribute to further experimentation in both technology and propagation.

Power transmission line communications and mine communications systems (which employ 'leaky' cables) both use this part of the LF spectrum, but the NZART report there have been no interference problems arise from amateur use of 165-190 kHz in New Zealand.

While practical antennas at these frequencies have efficiencies of fractions of a per cent, ground wave propagation follows the Earth's curvature with quite low losses so that, even with only milliwatts of effective radiated power, daytime ranges extend over hundreds of kilometres with stable, consistent signals. At night, skywave propagation can extend the communications range to 1000s of kilometres, but with strong signal enhancements and deep fades. Noise from electrical storms is greater at night than in the day. Man-made noise levels arise from mains power lines but, as it is conducted, is readily avoided or reduced with simple techniques.

In Europe, the RSGB recently reported that 136 kHz signals were copied over a distance of almost 1000 km, between DA0LF running an ERP of 50 mW in Frankfurt, Germany, received by G3XDV along with G4JNT, G3WKL and G3PLX in the UK. Digital signal processing (DSP) receiving techniques and very slow Morse were used. Late in December, G4GVC heard OH1TN on 136 kHz, a distance of 1762 km, according to the RSGB's *GB2RS News* for 11 January.

Which Australian licensees should get access to such a band? There is a view that all licensees be permitted use of an LF allocation, should it be granted, in order to encourage the greatest degree of self-education and experimentation, particularly for newcomers of all ages, in keeping with the tradition of amateur radio. The sticking point here is the existing International Radio Regulations which require amateurs to hold a Morse code qualification for access to bands below 30 MHz. But a number of countries have permitted access to a few amateur bands, or band segments, below 30 MHz for no-code licensees, notably Japan and Korea (as well as Australia, with 29-29.7 MHz for Limiteds).

[Released 12/1/98]

Sign up a new WIA member today – we need the numbers to protect our frequencies and privileges

WIA Responds to ACA on RF Emission Limit Proposals

The Australian Communications Authority (ACA) has proposed introducing mandatory regulations to limit people's exposure to radio frequency electromagnetic energy, publishing a discussion paper on the issue last October and calling for public comment (see *WIA News, Amateur Radio,* page 3, December 1997).

Australian amateurs would be affected under the proposals, by having to demonstrate compliance with limits imposed by Australian Standard AS 2772.1, while commercial amateur equipment would be affected by having to meet certification under the standard, with handheld VHF and UHF transceivers being particularly affected. Amateurs in the USA now have to meet mandatory RF exposure standards under Federal Communications Commission (FCC) guidelines.

The WIA has responded to the ACA's Discussion Paper, with a five-point commentary. The WIA's representative on the Radiocommunications Consultative Council (RCC), Dr David Wardlaw VK3ADW, also a member of the WIA-ACA Liaison Team, discussed with the ACA the issues raised in their proposals following an RCC meeting in December.

In the WIA's response, written by David VK3ADW in consultation with the other members of the WIA-ACA Liaison Team, it was pointed out that the Australian Standard on non-ionising radiation, AS 2772.1, is presently being revised, a draft standard has yet to be agreed, and there are some differences from the existing standard which make it difficult to comment without knowing the final wording of the standard which is intended to be made mandatory. Compliance with AS 2772.1 is voluntary at present. In addition, the current standard and the draft new standard differ from the international standard, which is less stringent in some portions.

Clarification was sought on the proposed compliance arrangements for commercially-made amateur equipment.

The WIA response suggested that, in regard to Amateur licensees, the ACA take a lead from how the FCC in the US has approached amateur station compliance with RF exposure standards. They have a system in which stations having nominated power output thresholds, or lower, on the various amateur bands are "deemed" to comply, otherwise they have to undergo a routine technical evaluation. The power thresholds for most bands are above the powers typically used by many US amateurs.

In addition, the WIA response questioned the ACA's proposed approach to compliance for mobile and handheld transmitting equipment, which lumps handheld transceivers together with mobile phones. Handheld transceivers are operated quite differently from cellular mobile phones, have push-to-talk operation whereas mobile phones transmit at regular intervals when not in use as they are 'polled' by the cellular network. Even though they may have higher powers than mobile phones, handheld and mobile transceivers have much lower transmit duty cycles.

The WIA's position is that compliance with RF emission standards should not impose unduly onerous technical or administrative requirements on amateur licensees and that the proposed framework take into account the quite different, if not unique, nature of amateur station operation.

The ACA extended the deadline for responses to its Discussion Paper. In January, the ACA told *Australian Financial Review* journalist, Helen Meredith, that it was still taking submissions, was seeking telecommunication industry comment, and will hold seminars in Sydney and Melbourne before making a final decision (*AFR*, 13 January, p 22).

[Released 13/1/98]

Amateur Radio Turns 100

The hobby of amateur radio has reached its centenary. According to the Radio Society of Great Britain (RSGB), in 1898 a young army officer, Lieutenant M C J Dennis followed the lead of Guglielmo Marconi, setting up his own experimental wireless station at Woolwich, in London.

Lieutenant Dennis later claimed that his station was the "first non-professional wireless experimental station in the world." His claim was never challenged, thus establishing Dennis as the world's first true radio amateur.

The RSGB is marking this centenary year of amateur radio by launching two new awards for HF and VHF-UHF activity between 1 January and 31 December. *(Thanks to Qnews and the RSGB's GB2RS News).*

[Released 13/1/98]

ACA Grants AX for Australia Day Long Weekend

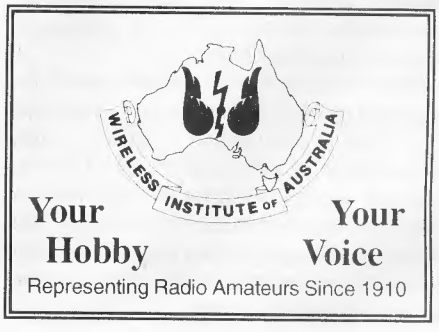
A late concession from the Australian Communications Authority (ACA) in mid-January granted Australian amateurs use of the 'AX' prefix for the 72 hours (local time in each State and Territory) of the Australia Day long weekend.

In 1997, the then-SMA permitted use of the AX prefix only for the 48 hours of the Saturday and Sunday, 26-27 January.

WIA Federal President Neil Penfold VK6NE wrote to the ACA in December, seeking confirmation of the AX prefix in celebration of Australia Day in 1998, as it had been granted in 1997. However, the confirmation received by the WIA, after the January issue's deadline, only granted use of the AX prefix for Monday, 26 January 1998, and not the 24th-25th, as advised in January's *Amateur Radio* magazine.

Following communications between WIA-ACA Liaison Team members Neil VK6NE and Roger Harrison VK2ZRH and the ACA, the ACA agreed to the WIA's preference, from its original December 1996 submission, for having use of the AX prefix over the three days of the Australia Day holiday weekend each year. *WIA News* releases were immediately sent to all Division broadcast officers, posted to the packet radio network and Division Web sites.

[Released 13/1/98]



Auto Industry Moves to Control Electronic Pollution

So said the headline on a Christmas release from the Ministers for Transport and for Communications, Mark Vaile and Senator Richard Alston, respectively. The occasion was the announcement of formal agreements between the Australian Communications Authority (ACA) and the Federal Chamber of Automotive Industries (FCAI), which include compliance with broad-band and narrow-band electromagnetic emission requirements, and immunity of automotive devices to electromagnetic interference (EMI).

The new code also includes additional vehicle-specific requirements over and above the ACA's mandatory electromagnetic compatibility (EMC) framework.

Vehicle equipment failures resulting from EMI can range from jammed keyless entry systems or faulty vehicle alarms, to failure of electronically controlled equipment such as brakes. Emissions from vehicles can affect nearby radiocommunications equipment, as every radio amateur well knows.

The industry code of practice, developed by the FCAI, which applies to all its members, sets limits on both the unintended emissions from vehicles and standards for the susceptibility of vehicle electronic to emissions from elsewhere. The code and standards are to be phased in over the next few years and will apply to all FCAI members' vehicles introduced onto the Australian market.

Meanwhile, Melbourne automotive electrical and electronics manufacturer, Robert Bosch, is doing their bit to save Australian motorists the anguish experienced by their British brethren over interference to RF-operated keyless car locks.

During 1995-96, the UK Automobile Association received more than 16,000 calls from car owners with immobilised or locked vehicles because their 433.05-434.79 MHz 'radio access key entry' (RAKE) systems for door locking/unlocking combined with engine immobilisation, were clobbered by nearby amateur and other services' transmitters operating in the same, or adjacent, frequency band.

The 433.05-434.79 MHz band is allocated as an ISM band on the Continent by the European post and telecommunications conference (CEPT). The RF security systems entered Britain with cars imported from the Continent. But in the UK, 430-440 MHz is allocated to radio amateurs and the military, and adjacent bands to mobile two-ways.

The RF car keys' 10 micro-watt transmitters, or the system's receivers, were simply swamped by stronger signals. A classic case of electromagnetic incompatibility. Last year, despite being warned of "the British disease," the Australian Communications Authority issued a Class licence for 433.05-434.79 MHz devices, smack in the middle of the 420-450 MHz band shared by defence and amateurs.

As a world centre of competence for automotive electronics, Robert Bosch in Melbourne takes steps to see that RF security systems for vehicles which would find their way onto the Australian market use another frequency, thanks to employee Bob Tait VK3UI, who alerted the company to the potential problem. But Bosch isn't the only RF car lock key supplier.

[Released 13/1/97]

Another VK2 Wins the Fluke DMM!

Lucky winner of the November new recruit draw for the Fluke 12B digital multimeter was **Mr N F Murphy VK2GAN**, of Bean Creek, Old Bonalbo NSW, who joined the Queensland Division of the WIA.

Every month throughout 1997 there was a draw from among new WIA recruits joining each month. December was the last chance to join the WIA and enter the monthly draw to win a Fluke 12B digital multimeter.

The 12 prizes for the year have been generously donated by Philips Test and Measurement. Fluke is the world's pre-eminent manufacturer of digital test instruments.

The Fluke 12B, worth $195, measures AC and DC voltage (with auto-selection above 4.5 V), resistance and capacitance from 1000 pF to 1000 µF. The instrument features a simple rotary dial, a 4000-count liquid crystal display, and diode and continuity testing. Its "continuity capture" feature indicates intermittent open and short circuits. It comes with test leads and a two-year warranty.

Membership recruitment advertisements appeared in each issue of *Amateur Radio* magazine, and in *Radio and Communications* magazine throughout 1997. Membership recruitment and renewal advertisements also appeared on WIA Divisions' World Wide Web pages on the Internet.

[Released 13/1/98]

Is VK4HA The World's Oldest Amateur?

Harry Angel VK4HA celebrated his 106th birthday on 14 December last year, the occasion drawing the attention of the media, with his birthday celebrations broadcast nation-wide on a number of TV station networks.

According to *Qnews* editor, Graham Kemp VK4BB, Harry was born close to Fulham in the UK on 14 December 1891. He arrived in Australia from California after a trip round Cape Horn as a very young sailor.

Harry enlisted at the outbreak of World War I and was on the first ship of Australian soldiers to leave for the war zone. He was posted to a communications unit in the North African desert near Alexandria, in Egypt.

Following repatriation to recuperate in Rockhampton's military hospital, he settled in Brisbane, opening a radio repair shop, first at Toowong, later moving to the Grovely area. He sat and passed his AOCP in August 1935, alongside WIAQ Historian, Al Shawsmith VK4SS.

The news of Harry's birthday made it into the *ARRL Letter* for 9 January.

Several years ago, Harry's birthday also received world-wide publicity, with the challenge for any older amateurs to be identified. No names have come forward so perhaps Harry VK4HA is after all the world's oldest radio amateur.

[Released 13/1/98]

Help protect our frequencies – become an Intruder Watcher today

ACA Finally Puts Licence Details on the Internet

The Australian Communications Authority (ACA) finally made their licensee register details available through their Internet Web site in mid-December. Earlier in 1997, the Spectrum Management Agency, since amalgamated with AUSTEL to form the ACA, planned to make the register available by mid-year.

Search options at the *www.aca.gov.au* site permit searching the register by licence call sign, by frequency, by assignment (if known), by client (if details are known), or by site (if details are known). You can search licence assignments by a given frequency or within given upper and lower frequency limits.

A search just above the top end of 80 m, from 3700-3740 kHz, reveals some 1200 assignments! The licence fees collected for this 40 kHz slice of HF are calculated to be more than $40,000 annually. What would 80 m be worth?

The contents of the register for individual amateur licensees include call sign, licence category, licensee's name and postal address (if different from station address – otherwise, the station address), date last renewed and next renewal date, and status of the licence, eg whether it is current, expired or due for renewal. Other licences held by a licensee can also be retrieved, eg Amateur Intermediate licensee D I Horsfall VK2KFU also holds an Outpost Non-assigned licence, call sign VLG40.

Meanwhile, the ACA has launched a new 'house' publication, called *Connections: The Australian Communications Authority Bulletin.*

To be published quarterly, the first issue was launched in December last year. The ACA said *Connections* is designed to provide information about the communications industry to the public, the radiocommunications and telecommunications industries.

The first issue included an introduction from ACA chairman, Tony Shaw, outlining changes to communications regulations and describing the role of the ACA and its key relationships. Articles included an update on spectrum auctions, the new ACA corporate plan and the telephone calling number display issue.

Copies of *Connections* can be obtained from any of the ACA's offices around Australia.

Also in December, the Minister for Communications, Senator Richard Alston, announced a fourth appointment to the ACA, Ms Esther Alter, who will be a full-time member. She is a qualified legal practitioner with experience in private practice and academic teaching positions.

Other full-time members are Tony Shaw (chairman) and Dr Bob Horton (deputy chairman). Associate Professor David Round is a part-time member.

[Released 13/1/98]

WIA to Assist Promotion of Amateur Radio in Nepal

WIA Federal President, Neil Penfold VK6NE, in company with Joe Fazio VK6BFI, visited Nepal in December on a DXpedition operation at the invitation of Richard Wurster 9N1ARB, who works for the United Nations' Food & Agricultural Organisation in Nepal. Neil operated as 9N1NE and Joe as 9N1BFI, after paying $AUS195 each for operation on 14 MHz and 21 MHz only.

Neil took the opportunity, as WIA Federal President, to speak with top level officers in the Nepalese Ministry of Tourism and Communications, outlining the amateur system in Australia and the benefits amateur radio can bring.

Getting an amateur licence in Nepal is no easy thing. Having passed their examination, a prospective amateur then has to obtain permission from the police, the military and the communications minister to get on the air. Neil offered the Nepalese administrators assistance from the WIA in the amateur examinations area, which was well received.

Efforts are being made to maintain links with the few Nepalese amateurs and the Ministry of Tourism and Communications in order to advance promotion of amateur radio in the country.

[Released 13/1/98]

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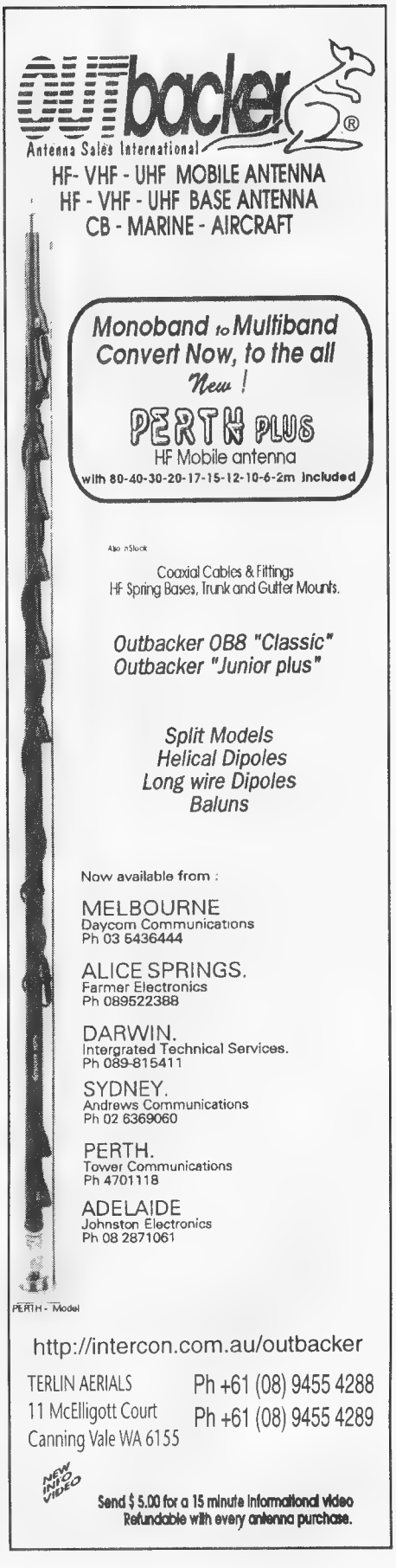

News

WIA Divisions

Forward Bias – VK1 Notes

Tom VK0TS/VK1TS Returns

As you may be aware, Tom VK1TS has returned from a stint on Macquarie Island during which time he was quite active as VK0TS. He called the other day to say that the QSL cards from his time in VK0 are now being dispatched and to pass on his thanks to all he worked. Tom will be giving a presentation on his experiences down south at a forthcoming meeting; keep an ear on the broadcast or an eye on the Website for details.

Fox Hunts

Neil VK1KNP organised a fun-filled start to the new year in the guise of a series of fox hunts prior to the regular technical group meetings on Thursday night. Neil was kind enough to write up the first of these hunts for this month's column:

"The Hounds gathered at the Communications Lab for the first Fox Hunt of 1998 on Thursday, 8 January. A total of 10 hounds started, forming into eight teams, seven in vehicles and one on foot. Neil VK1KNP placed the fox around 2 km from the starting point in the grounds of the Canberra University.

"Within 20 minutes the pedestrian Peter VK1PK was in the vicinity of the fox while all the vehicle based hounds were driving in circles around the wrong side of the University. Laeli VK2LO and Paul VK1TEE were the next team on the scene joining Peter in the vicinity of the fox, while some other hounds were searching garbage hoppers 300 metres away on the other side of the campus.

"The Fox had been placed in an open grassy area which had been mowed before the summer, and it was carefully hidden under the weathered grass cuttings. This location was adjacent to a small forest, and so all the hounds had assumed it was in the forest and were busy searching trees on the edge when Neil VK1KNP arrived back at the fox location.

"Peter and Laeli spent a good 25 minutes in the vicinity of the fox on foot, until Peter stepped on it and found it. The antenna was a piece of brown wire sticking up out of the grass with some weeds. As Peter was somewhat jubilant at finally finding the fox, he sort of gave the game away to Laeli's team; however, no other hounds were present. The next hounds to arrive were Simon VK1AUS and Phil VK1ZPL. Our WICEN team's hand-held had a flat battery and could only be used in the car. They then took around 10 minutes with borrowed gear to locate the device, again by tripping over it.

"Jack VK1JA and Richard VK1ZW individually arrived next and wandered the forest and field for another 10 minutes before finding the fox. Finally, John VK1ET and Dave VK1DC, who both started late, arrived from different directions. Unfortunately, the fox was now visible and was quickly located.

"The final hound never showed up – Tom VK1TS is out there somewhere! We arrived back at the Lab around 8.30 pm.

"To all those who participated, thanks for showing up. Fox Hunts will continue on Thursday evenings for the rest of January and may continue into February also. The next Fox will be Laeli VK2LO"

AGM

A final reminder that our AGM will be held during this month's meeting. If you would like to assist with the running of the Division by participating in the committee, please consider nominating for a position. In any case, your presence at the AGM would be appreciated to ensure we have a quorum and, besides, it's nice to catch up for a chat, too!

Hugh Blemings VK1YYZ

VK2 Notes

Quiet Start to the New Year

I can only report that it has been a quiet start to the year, thus a shorter than usual VK2 Notes this month. I trust that, after the holiday season and getting back to work, everything is going as planned. There is much to do in continuance of some of the projects and policies that were started last year and which are of particular importance to the hobby of amateur radio and its future.

1998 Annual General Meeting

The date set for the AGM is 18 April 1998 at Amateur Radio House, Parramatta. It will commence at 11 am. Nominations for Council and Motions on Notice are to be lodged no later than 12 noon on 7 March 1998. Late lodgements will not be accepted. Council nomination forms are available from the divisional office at Parramatta.

Central Coast Field Day

The VK2 Division will be attending the Central Coast Field Day at the Wyong Racecourse with a bookstall and deceased-estates stall. This would also be an ideal opportunity for you to catch up and have a chat with those Councillors of the Division who will be attending. It is anticipated that there will be a good roll up of Councillors at the event on the day.

Membership Renewals

Just a reminder that all VK2 WIA membership renewals are being processed through the Divisional Office at Parramatta. Anyone who has received a renewal notice, but has not yet responded, should forward the notice, along with your fee, to the VK2 Divisional office of the Wireless Institute at PO Box 1066, Parramatta NSW 2124. Do not send it to the Federal Office.

Correspondence Course

The VK2 Novice Correspondence Course is now available. For more information contact the Parramatta Office. It is a great way to achieve a positive result and gain your amateur radio callsign. There will shortly be a bridging course to take you to the AOCP (full-call).

Next Council Meeting

The first meeting of the VK2 Councillors for 1998 will take place on Friday, 13 February at Amateur Radio House at Parramatta, commencing at 7.00 pm. As is normally the case, this will be an 'open' meeting with all members invited to attend.

For more information, contact the office or any of the Councillors. We will be only too pleased to hear from you. If you would like to get in touch with an individual Councillor, just contact our Divisional office and it will be arranged. Our freecall phone number is 1 800 817 644 and our address can be found on the WIA Divisions' page at the back of this magazine. If you are addressing e-mail to the office, please do so at vk2wi@ozemail.com.au. There'll be more to report next month, but if you have anything you would like us to include as VK2 news, send it to me at PO Box 82, Springwood NSW 2777, or by e-mail to *dthom@penrithcity.nsw.gov.au*

David Thompson VK2NH

VK5 and VK8 Notes

Greetings to all readers for 1998. I trust that this will be a good year for you.

I do apologise for the lack of notes in the January issue; however, with pressures of the season and other matters, the earlier deadline date slipped by me. I will try to do better in future.

In the South Australian Division "Journal" I have made comments regarding agenda items for the forthcoming Federal Convention to be held in March. I have also commented on the matter of nominations for the Divisional Council and the election to be held in conjunction with the Annual General Meeting in April. I hope that all VK5 Division members will take special note of this material.

Well, we finished the year off in fine fashion with the interesting exercise of obtaining a special reciprocal licence for Dr Andrew Thomas, who is Adelaide born, and the final astronaut selected to join the Russian cosmonauts on the MIR Space Station. I had the privilege of meeting with him here in Adelaide and found him to be a particularly pleasant gentleman. He expressed his pleasure at our actions and indicated his anticipation at being able to contact Australian amateur radio operators whilst on his coming mission.

Federal Convention

The VK5 Division will be looking at several proposed agenda items in the weeks leading up to the Federal Convention in March. It had been regular procedure in the past for details of agenda items from all Divisions to be promulgated in *Amateur Radio* magazine prior to Federal Conventions to allow members the opportunity of considering their content and subsequently providing their opinions to their Divisions as to how the items should be handled (ie voting for or against, or modifying). I feel that it is a shame this does not seem to occur at present and it may well be symptomatic of one of the reasons why there has been a general fall off in membership of the WIA (ie due to an apparent lack of interest or consultation with members on the part of WIA officers).

Within the VK5 Division Council there has been a move to try and counteract this situation. You may have noticed some aspects of this over the last nine months or so. To this end I provide here some brief comment and ideas as to possible agenda items which members will be asked to consider for proposal by the VK5 Division.

One of these deals with the matter of representation by the WIA at Federal level to the various Government authorities. It would certainly seem that this is far from ideal. The feeling exists that there are times when the WIA should go straight to the top as many other organisations do and approach the Minister directly. Many advantages can come from this method of working. We need to discuss and come up with a firm method determining how we can deal in this way. Very often it is more expedient to deal with policy matters at higher level and utilise our connections with the bureaucracy at the working level to deal with technical aspects and the like.

Another item I would place before you is the matter of a clause contained in the Articles of Association of the Federal body of the WIA. If this is symptomatic of the way in which we would work I fear greatly for our existence. The particular clause is No 100 and deals with matters concerning dismissal of members of the Publications Committee in connection with our national magazine *Amateur Radio*. Would you believe that this says, in part: *"it shall not be necessary for the Council or the Executive to give any reason for so dismissing any member of the Publications Committee, including the Editor."*

I merely ask, "just how 'un-Australian' can you get?" and leave you to make up your mind as to what you think about such wording.

The VK5 Division also has an existing Federal Agenda item dealing with a move to encourage the inclusion of amateur radio within schools as a subject.

Yet another matter that has been attracting a lot of interest on the Packet Radio Network is "advertising of personal amateur radio equipment on air." Presently the regulations and comment on this matter by the ACA preclude this happening. It is thought the original intent that amateur radio should not be allowed to be used in any "commercial" way may have become distorted within the existing frame-work of the regulations. There is potential for a case to be made to have the regulations updated and liberalised to allow a more enlightened and reasonable approach to this issue.

Concern has been expressed regarding the erosion of frequency allocations in the VHF/UHF/Microwave portions of the spectrum. It would appear that within the relevant bands no "exclusive" amateur radio allocations exist. This situation certainly needs to be addressed.

These are just some of the items which are up for discussion within the VK5 Division. This information is provided so that VK5 members who cannot attend meetings, as well as those in other States, may be aware of the nature of business being addressed within the VK5 Division.

Without information of this kind, how can any member possibly become aware and knowledgeable regarding what is going on? This approach will, I hope, lead to members taking a more active part in letting their representatives know what "THEY", the members, want of our organisation.

Within VK5

Recent appointments within the Divisional Council saw action taken regarding our representatives to the Federal body. Ian Watson VK5KIA has been appointed as Federal Councillor and David Burnett VK5AXW as Alternate Federal Councillor.

Other matters concerning the Division include our occupancy of the Burley Griffin Building (see February *Journal*), Clubs' Conventions, Country Member Liaison, Divisional Broadcasts, Constitution Review, distribution of Minutes of Meetings etc. etc. There is a great deal of work to be done and a need for people who are prepared to help do that work.

Ian Hunt VK5QX

VK6 Notes

WARG February Meeting

Please note that the next meeting of the West Australian Repeater Group will be held on Monday, 2 February at a new venue, the recently completed RSL Hall at the corner of Ramsden Road and Playfield Street, East Victoria Park, commencing at 7.30 pm. Please mark the next meeting down in your diaries: 2 March, QTH to be advised via the WIA news.

VK6RCT Cataby

This repeater was recently remotely shut down due to false triggering by an unknown cause. The triggering was causing unnecessary battery drain as well as tying up the rest of the linked repeater system. The repeater was returned to service on Sunday, 4 January and appears to be behaving normally. If further false triggering occurs it will be necessary to shut down the repeater until a site visit can be made to investigate the problem.

Mast and Site Safety Issues

A special meeting of the WARG committee was held on Monday, 5 January to discuss safety issues and possible legal liabilities associated with access to and maintenance of our repeater equipment, especially with regard to the climbing of masts and towers. The committee is concerned that, where the Group has equipment that uses or shares commercial masts and/or sites, access is becoming increasingly hidebound by regulations promulgated under the Mines Act and/or Worksafe WA.

In effect, when we enter these sites we do so as sub-contractors and must obey the regulations fully, including the appointment of a Safety Officer. Each individual must wear approved Personal Protection Equipment such as hard-hat, safety boots,

safety spectacles, and high visibility jacket. To illustrate the problem, VK6RTH and VK6RMW are both located on commercial mine sites; VK6RMS, RAW, and RAP/RUF/BBR use commercial masts on commercial sites; and VK6RAV, RCT, and RBN use WARG-owned masts located on land owned by a third party. VK6RLM and VK6RFM are both located at private amateur QTHs using the amateur's own mast or tower.

The committee is concerned that any failure to observe fully the appropriate regulations could nullify our WIA Public Liability and Accident/Sickness insurance cover, as well as expose the Group to possible legal action.

Steps are being taken by the committee to conform with the regulations where commercial interests are involved, and clarification is being sought as to our position where sites owned by third parties are used.

In a nutshell, the ever-increasing regulation of sites, together with the serious consequences of a mishap, pose difficult questions for the continued viability of much of our repeater network, and for amateur repeaters everywhere commercial sites are used.

Further discussion with the WIA committee will take place shortly and more information will be published as the situation becomes clearer.

ARNEWSLINE

For some weeks now, Will VK6UU has been downloading this excellent Amateur Radio News Service (which originates in Arcadia, California) via the Internet and then relaying it on air via WARG's repeater network. Except for the two weeks over Christmas, when the relay was made at 0930 on Sundays 28 December and 4 January in place of the usual WIA Divisional broadcast, this news service has been available at 10.15 am on repeater Channel 6750 immediately prior to WARG's Technical and General Net.

Some discussion is currently taking place as to the optimum time-slot each Sunday, but meanwhile ARNEWSLINE can be heard at 1015 hrs on Ch 6750. *(I am indebted to Clive VK6CSW for the provision of the above items.)*

HamWeb – Broadcast Mode Packet Radio

Recently I purchased the conference notes of the ARRL/TAPR Digital Communications Conference, October '97. In them, John Hansen WA0PTV describes a set of software which makes use of the potential broadcast nature of amateur packet radio, to allow "the transfer of files and entire directory structures from a server to many client stations simultaneously".

So what use is that? Consider an audio broadcast, such as the WIA news, or even the ARNEWSLINE program. The audio can be vocoded at a rate of 16 kbps, using an algorithm such as RealAudio (RA) uses. This forms a fairly large binary file; the 20 minute WIA news would become about 2.4 MegaBytes (a lower vocoding rate would drop the file size, but at the expense of a drop in voice quality).

Have you ever missed the WIA news, simply because the set broadcast times didn't fit your family, work and social commitments? I certainly have. Years ago we were looking at recording it on tape, and allowing amateurs to remotely retrieve the broadcast via DTMF; but then we ran into regulatory problems, and the idea was dropped.

Well, instead we can digitise the news broadcast, and have it delivered as a 'background task' via packet radio. When we want to hear the WIA news broadcast, we simply click on our local Web Browser, and the audio appears on our PC speakers! The news can be listened to at the end-users convenience, even if that is 3.00 am on a Tuesday morning. How long would it take to download from the central server to an end user? (Does it matter? It all happens in the background anyway).

Roughly speaking, a 2.4 Mb file would take about six hours to download at 1200 bps duplex; obviously 9600 bps would be nicer, but is not necessary, especially if the WIA news in RA format is 'released' for digital broadcast at 4.00 am on a Sunday morning (using a batch process, not manually of course!).

End users would then have the news available from 10.00 am onwards. The important thing to note is that multiple stations will have received this information simultaneously, with individual stations only having to request the occasional block they missed. Is anyone interested in making use of such a facility? Please let me (VK6KCH) know. The software is available from TAPR, at either *http://www.tapr.org/~wa0ptv* or *ftp://ftp.tapr.org/pub/wa0ptv*

Contact Information

Chris Lowe VK6BIK via *chrismor@avon.net.au* or PO Box 838, Toodyay WA 6566 or 08 9574 4060. Chris Hill VK6KCH via *vk6kch@amsat.org* or packet *VK6KCH@VK6BBR.#PER.#WA.AUS.OC*

Chris Hill VK6KCH

"QRM" News from the Tasmanian Division

Branch Meetings

This month sees all Branches holding their Annual General Meetings. All positions will be declared vacant and nominations will be called for. I believe that several office bearers have indicated their desire to stand down.

Meetings will be held as follows: Southern Branch on Wednesday, 4 February at 2000 hours at the Domain Activity Centre, Hobart; North-western Branch on Tuesday, 10 February at 1945 hours at the High School, Dial Road, Penguin; and Northern Branch on Wednesday, 11 February at 1930 at the Alanvale campus of Tasmanian TAFE (they should be meeting in the usual room 14 of "Block" C but, as you may be aware, TAFE in this state has been re-organised into five separate sections, hence there is considerable confusion as to what goes where, so listen for the confirmation of the actual meeting room over VK7WI).

Divisional AGM

The Divisional Annual General Meeting will be held at the northern campus of the University of Tasmania on Saturday, 21 March at 1400 hours. Further details of the location will be in next months' column. Nominations are now open for eight positions on Council, and close 21 days prior to that date with the Divisional Secretary at PO Box 271, Riverside TAS 7250. Notices of Motion must be lodged by 21 February, also to the Divisional Secretary.

In the evening the Northern Branch will be hosting a buffet meal at the University cafeteria from 7.30 p.m. The idea is to pay for what you want. Also, I believe a band has been booked, there will be a lucky door prize, and Divisional Council is hoping to obtain a prominent guest speaker.

Please pencil in the date of the Divisional AGM now and inform the Northern Branch secretary at PO Box 275, Launceston TAS 7250 by 1 March. This will help catering arrangements. See you there!

Social Get-together

The Northern Branch held their annual Social Get-together at the home of Paul VK7KPG in Scamander. There were 20 hams in attendance plus nine others. Especially pleasing was the attendance of VK2YR who read about it through this column whilst travelling down in the plane the day before.

The weather this year was different from 1997, being overcast yet very humid, so your correspondent was not sunburnt nor attacked by 'mozzies'. Pleasing, too, was the participation of hams from other regions of the state, who gravitate to the east coast in the summer months. Yes, we will definitely be back in 1999. Mark it down now to come along and join us then!

Robin L Harwood VK7RH

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Club News

North East Radio Group (NERG)

The North East Radio Group will be conducting Novice classes, starting 3 March 1998 at 7.30 pm. The venue will be the St Helena Secondary College, Wallowa Road, St Helena. Look for the fourth portable class room from the car park exit.

The cost will be $100, which includes Club membership fee, Morse tapes and trial examinations.

Course enquiries should be made to Dave Prictor VK3JMB on 03 9465 9708.

The NERG also meets monthly on the second Thursday of each month at 8 pm at the same venue. Anyone wishing to attend is most welcome.

Dave Prictor VK3JMB

Radio Amateurs Old Timers Club (WA)

Wedding of George Moss VK6GM and Betty Ball

On Sunday, 2 November 1997, George VK6GM and his YL Betty, tied the matrimonial knot at a private ceremony held at the home of Betty's daughter.

Members of Betty and George's families and friends were present to witness the ceremony which was conducted very tastefully by Celebrant Olga Wignall. Several RAOTC members and wives were also invited and George's son Ray Moss was MC.

Immediately following the ceremony and the signing of documents, Betty Moss was presented with a brand new RAOTC badge which read: "Betty Moss - Radio Amateurs Old Timers Club - XYL VK6GM".

George and Betty had announced their engagement on George's 94th birthday in September 1997 but they have been together for 17 years. Betty, aged 79, has been a long time wildflower enthusiast and photographer and George, of course, has been associated with radio communications and amateur radio for more than 70 years.

Following the ceremony a delightful buffet meal was offered to the wedding party and guests and this, suitably accompanied by copious amounts of champagne and other drinks enabled those gathered to respond in a suitable manner to Ray Moss' toasts to the happy couple.

We all wish George and Betty many more happy years together, good DX and, hopefully, many packet messages to them via George's packet address which is: VK6GM@VKGZSE.#PER.#WA.AUS.OC

RAOTC members here will no doubt continue the toasts to Betty and George at the next get-together at the Bayswater Tavern.

After an article and photo appeared in the *West Australian* newspaper in relation to George and Betty's wedding, George received phone calls and cards from many of his former students, many of them now successful businessmen, recalling fond memories of George's days as lecturer at the (then) WA Institute of Technology (now Curtin University), and his gentle persuasion to academic excellence.

Ray Peterson VKGPW

Radio Amateurs Old Timers Club (RAOTC)

AGM

The annual general meeting and luncheon will be held on Tuesday, 10 March at the Bentleigh Club commencing at 1 pm. The cost has not yet been determined, but is expected to be about $25 a head.

The guest speaker will be Mr Mike Hassett, Communications Engineer at the head office of the Bureau of Meteorology.

George Moss VK6GM and XYL Betty.

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Members of any radio club are welcome to attend, but bookings are essential. Please book with Arthur Evans VK3VQ, QTHR.

Signals Museum

An Army Signals Museum was established at Simpson Barracks in Watsonia some years ago. In recent times it was allocated a separate building which now houses an interesting collection of Army Signals material.

On Friday, 14 November 1997 there was a brief ceremony when the Museum was declared open. The official opening ceremony was performed by Brigadier Mike Swan who is currently Director General of Information, Policy and Plans, Department of Army. The Museum is directed by Lieutenant Colonel Ken Munroe, assisted by Major Mary Reid and a growing group of volunteers.

From now on it will be open 10 am to 4 pm on Tuesdays and 1 pm to 4 pm on Sundays. Hopefully, it will also be open on Thursdays in 1998.

Items the Museum would like to obtain include: the Army version of the Kingsley AR7; and transmitters or receivers of the Ack set and Cork set which were used from the 1920s to 1939 when they were replaced by the Number 1 set and Number 2 set. If any members or friends can help, please contact Harry Mauger VK3KAE, or Allan Doble VK3AMD. We are both QTHR.

The Signals Museum is located at Molloy Road within Simpson Barracks, Watsonia, North East of Melbourne, Melways Map Reference 20 G 7. The telephone number is 03 9450 7379.

Allan Doble VK3AMD

Waverley Amateur Radio Society (WARS)

The Society has now completed three years at its premises in the Scout Hall at Vickery Avenue, Rose Bay, in the eastern suburbs of Sydney, and has a small but enthusiastic membership. We are, however, looking to increasing our numbers in 1998.

Regular meetings are held on the third Wednesday evening of every month and a Project day on the first Saturday afternoon. Details are included in the WIA Sunday broadcasts. In addition, we run Morse and theory classes, and examinations, once or twice a year. Other events are organised from time to time.

The huge annual US Hamvention at Dayton, Ohio in May each year must be known to many of you. A number of our members are planning a group trip for May 1999 and would be interested to hear from any VKs who might be interested in joining us.

A certificate of attendance will be given to each person attending the 50th Urunga Radio Convention on 11 April 1998.

If you are thinking of going, joining our group will give us more clout in negotiating attractive travel deals and you will be in the company of other VKs for the period of the show.

Most of our group will be treating this as the first part of a trip to other overseas destinations. If you would like further details, please contact Raffy Shammay VK2RF, on 02 9389 9188 (BH) or 02 9130 5128 or by e-mail to *shammay@zip.com.au*.

Being centrally located in Sydney, we try to provide a contact point for visiting hams from overseas or elsewhere in VK. Visitors are welcome to give a call on the Paddington repeater (147.025 MHz) when in town, as members usually monitor this frequency.

Our Internet Web pages have just been completely revised with the primary aim of providing information for hams visiting Sydney and readers are invited to access them at *http://www.zip.com.au/~sb/wars/wars1.htm*

We can be contacted by e-mail at *sb@zip.com.au* or by post to our recently changed address at: PO Box 581, Vaucluse NSW 2030.

Simon Buxton VK2EII

Wagga Amateur Radio Club

Wagga Amateur Radio Club 500th Net

On 27 January, the Wagga Amateur Radio Club Inc celebrated its 500th club net on 80 metres.

Club members will be active each night of February between 0930 and 1030z on 3.605 MHz +/- QRM for any operator to work VK2WG; or for any SWL who hears the station calling, and the club station, to apply for the certificate. The closing date for claims will be 31 March 1998. By then we should have a good idea of the number of certificates to issue.

The cost of the certificate will be $5 and all applications are to be sent to the Awards Manager, PO Box 304, Junee 2663 NSW.

I do apologise for the short notice, but the closing date for January *Amateur Radio* came up too quickly. I wish to take this opportunity to thank all those who have supported the WARC Tuesday night 80 metre net, for without them we would never has reached this milestone in our club history.

Paul VK2KVY
Awards Manager

50th Urunga Radio Convention

The 50th Urunga Radio Convention will be held at Urunga on the Easter weekend, commencing at 9.00 am on 11 April 1998. This convention is the first and longest running radio convention in Australia.

The first convention was held at the DO-ME boat shed, between the traffic and railway bridges at Urunga, during Easter 1949.

The first President/Organiser was Crieff Retallick VK2XO, and the Secretary was Peter Alexander VK2PA. From this date the stage was set for the first Amateur Radio Convention in Australia. The organisers had no idea at this first convention that their small get-together would survive for 50 years!

See you at Urunga 1998!

B J Slarke VK2ZCQ
ar

■ Transmitters

SSB by the Fourth Method?

Phil Rice VK3BHR
Lot 601K Durston's Road
Maiden Gully VIC 3551

Introduction

This article describes a phasing exciter which is easy to get going, offers excellent performance and has only three adjustments, all for carrier nulling. The exciter uses a digital counter to generate the 90 degree RF phase shift, a "sequence network" (Fig 4) to produce the 90 degree audio phase shifts, and a quad analogue switch to perform the modulation. The exciter produces clean SSB at frequencies up to 3.7 MHz, using easily obtainable parts.

How it Works

The exciter uses a variation on the phasing method of generating SSB. Four equal amplitude audio sources of relative phase 0, 90, 180 and 270 degrees, are sequentially selected by an analogue switch. Each source is connected through to the output for a quarter of an RF cycle. The sequence repeats at the carrier frequency, producing SSB. There is, in theory, no carrier and no opposite sideband in the output and the nearest unwanted output is at three times the carrier frequency.

Why it Works

The four phase audio source can be treated as two push-pull sources, differing in phase by 90 degrees.

When one source is sampled, taking alternative samples of the "push" and "pull" signals, a series of double sidebands (DSB) signals results. The first DSB signal is centred on the sampling frequency and the others are at odd multiples.

Similarly, sampling the other (quadrature) audio source produces another series of DSB signals. Providing the two sampling signals are a quarter of a RF cycle out of step, adding the two DSB signals produces SSB exactly as in the phasing method.

In theory, a family of SSB signals will be all that is produced. The first will be at the sampling frequency, the next at three times the sampling frequency, then five times, etc. There will be no carrier, no baseband, no unwanted sidebands and nothing at even multiples of the sampling frequency.

In practice, clean SSB is produced at the sampling frequency. The third order distortion products, carrier and unwanted sideband are all more than 50 dB below PEP. There appears to be no other "rubbish" near the wanted SSB signal. The nearest unwanted signal is at twice the sampling frequency.

Circuit Description

Audio from a dynamic microphone is first amplified by one quarter of a TL074 connected as a compressor. The audio is then bandpass filtered to restrict the range of frequencies to those handled by the "sequence network". The output from the "sequence network" is buffered by another TL074 with offset voltage adjustments provided on three of the op-amps so that all four audio stages can be "aligned" to minimise the resultant carrier. The outputs from the op-amps are RC filtered to present a low RF impedance to the 4066 analogue switch and to avoid upsetting the TL074.

The VFO signal, at four times the final carrier frequency, is amplified by two sections of a 75LS00, biased in the linear region. The signal is gated by another section of the 74LS00 so that the clock signal to the counter may be disabled while allowing the VFO to run continuously for minimum drift.

The Johnson (ring) counter is clocked by this gated signal. The counter output is decoded by four AND gates to produce the four sampling signals. The use of the Johnson counter and symmetrical decoding gates is aimed at matching the switching times as closely

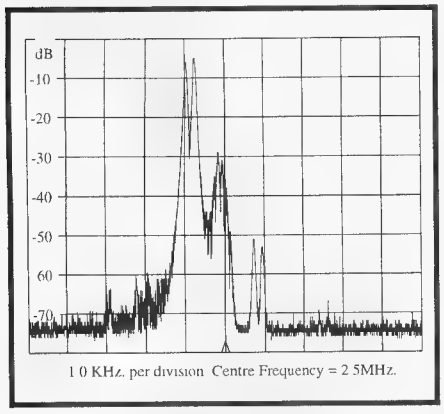

Fig 1 – Measured two-tone spectrum – carrier has not been nulled.

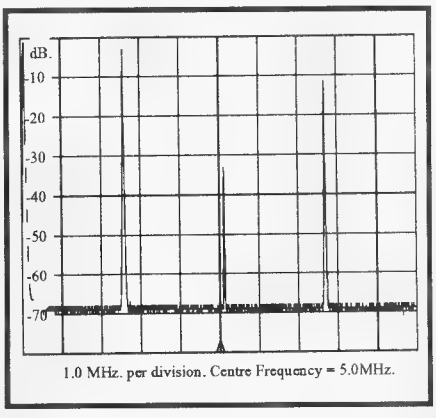

Fig 2 – Measured two-tone spectrum – wide band.

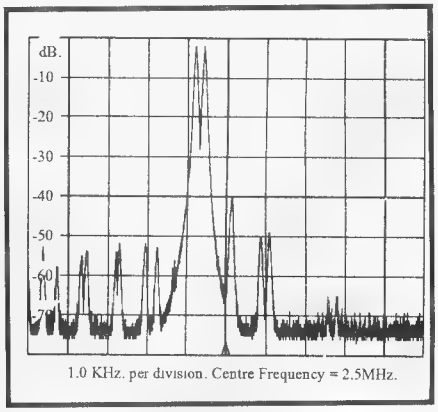

Fig 3 – Measured two-tone spectrum. Microphone compressor removed. Carrier is exaggerated for clarity – it would normally be 20 dB lower.

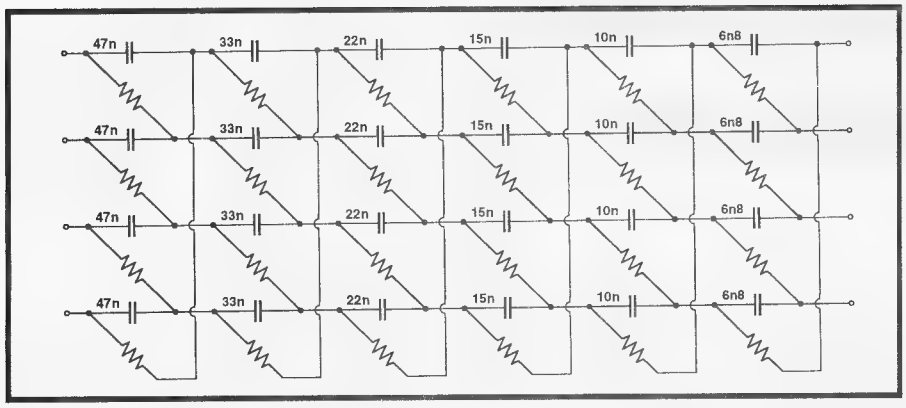

Fig 4 – Audio "sequence network".

as possible. The counter circuit could all be programmed into a PAL or similar to simplify this part of the hardware.

The 4066 analogue switch then sequentially selects, at the carrier rate, pieces of the four audio signals and presents them to the output buffer. A "roofing" filter (not included) is required to extract the desired DSB signal. A single tuned circuit or low pass filter would be sufficient.

Adjustment

Here is the easy part. First, with no audio input and using a multimeter, adjust the DC outputs of three of the buffer amplifiers to match the fourth one. The SSB exciter must be switched to SSB (not AM). It doesn't matter which sideband is selected.

Then tune a receiver to the output frequency (one quarter of the VFO frequency), switch to SSB and adjust all offset trimpots for minimum carrier (again with no audio input) Repeat a couple of times to get minimum carrier.

Performance

Figures 1 and 2 show the spectrum of the SSB generator output with a two-tone input signal.

The narrow-band spectrum, Fig 1, shows the worst distortion products more than 50 dB below the PEP level of the desired output (PEP is 6 dB above the level of one of the tones).

The wide-band spectrum, Fig 2, shows no undesired signals (to 80 dB below PEP) near the wanted output. The nearest rubbish is twice the frequency of the desired output.

Fig 3 shows the performance of the switching modulator with a clean audio source. The carrier has not been nulled (to make it easier to see); it would normally be 20 dB lower.

What If It Doesn't Work?

If you used the PC layout, Figs 5 and 6, then fault finding is easier.

1. Check that the DC voltage levels at the op-amp outputs match those shown on the circuit diagram (figures in brackets). Minor deviations, say plus or minus half a volt, are OK. The four buffer amplifier outputs (the one that drive the analogue switches) should be within a milli-volt of one another.

2. Check that the four digital inputs to the analogue switch are active. These should be selected sequentially, one per cycle of the VFO. You could try replacing the VFO by a very low frequency (audio) oscillator and use a logic probe to check activity.

3. Check the four audio inputs to the analogue switch. They should be the same amplitude, about 330 mV pp. If not, check the push-pull driver op-amps. The outputs here should be equal amplitudes too, about 1.25 V pp. If you have access to a dual trace CRO, check for 90 degree phase shift between adjacent audio signals at the input to the 4066 analogue switch.

4. If both the preceding checks are OK, the 4066 is probably faulty. With no audio input, check the DC level at the output from the analogue switch. Then connect the output to earth via a 1 k resistor. If the 4066 is OK you shouldn't see change in the DC voltage. The voltage should be within 20 mV of the output of the wipers of the offset voltage trim-pots (somewhere near 5.9 volts).

If you have made your own printed

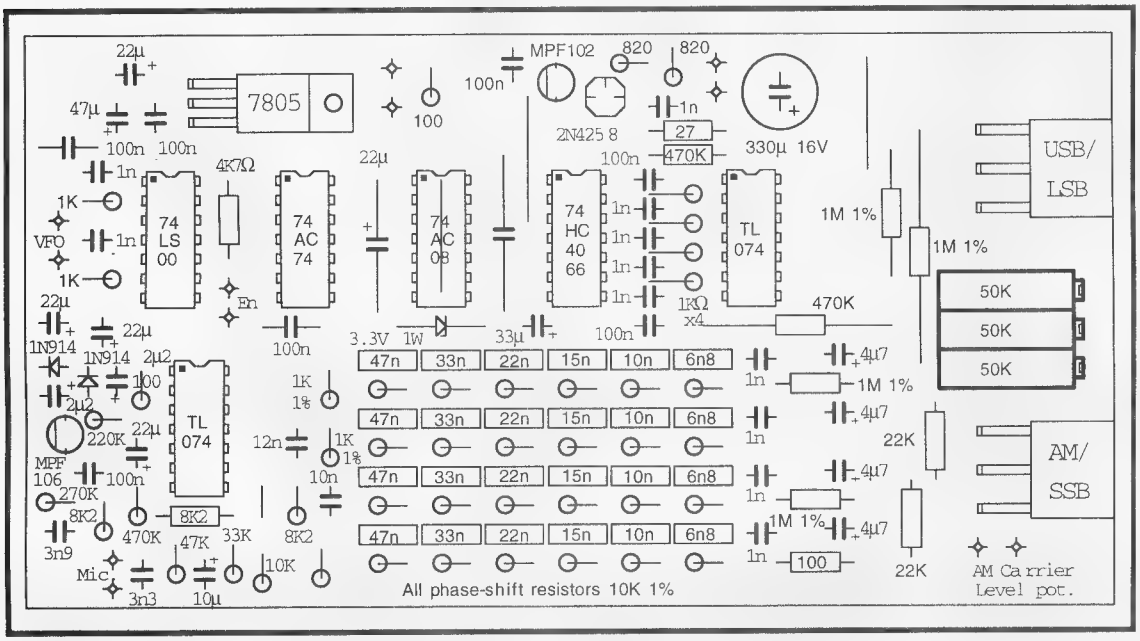

Fig 5 – PC board component overlay.

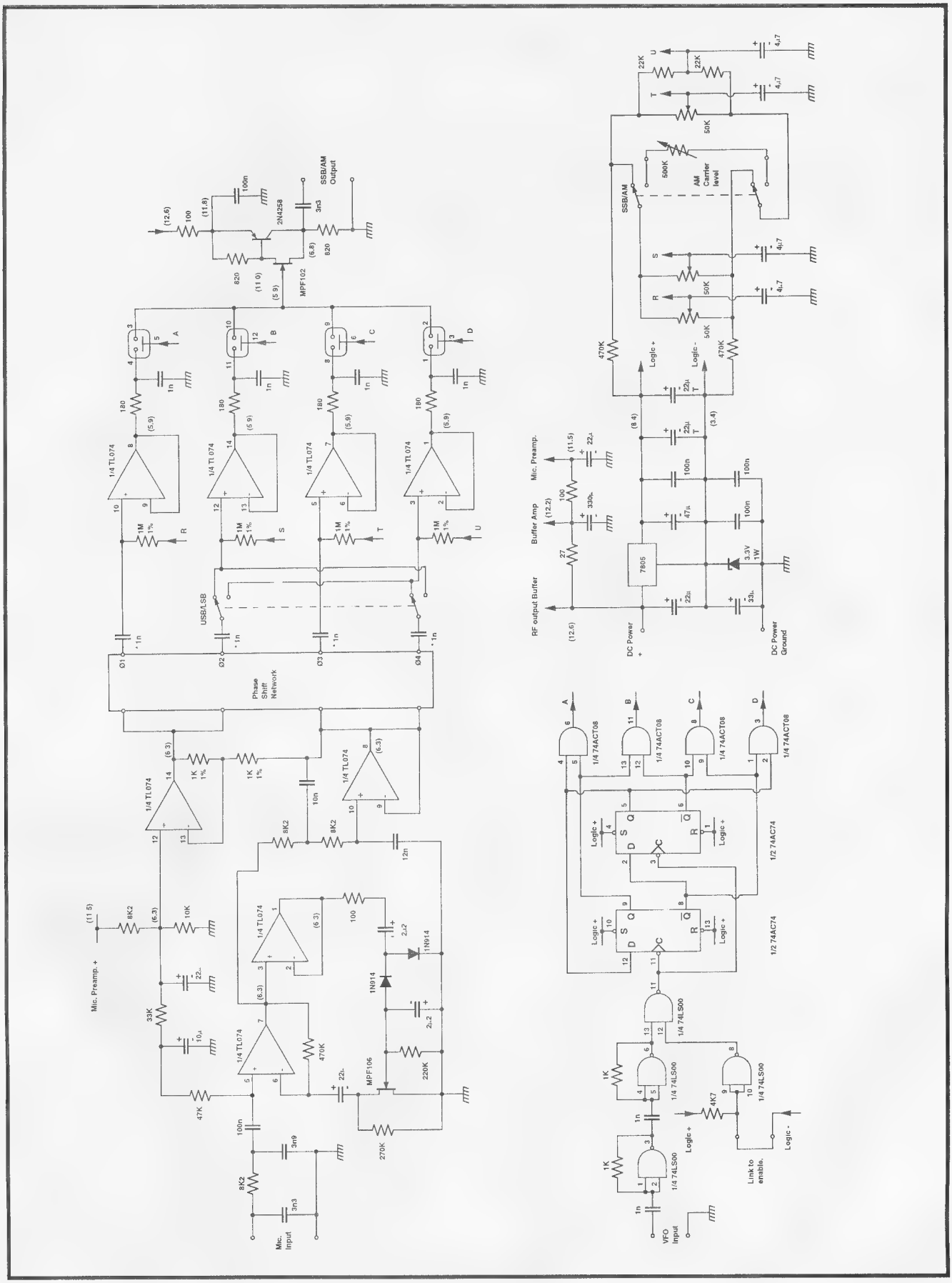

Fig 7 – Circuit diagram of the fourth method phasing exciter. ***(Drawn by Phil VK3BHR)***

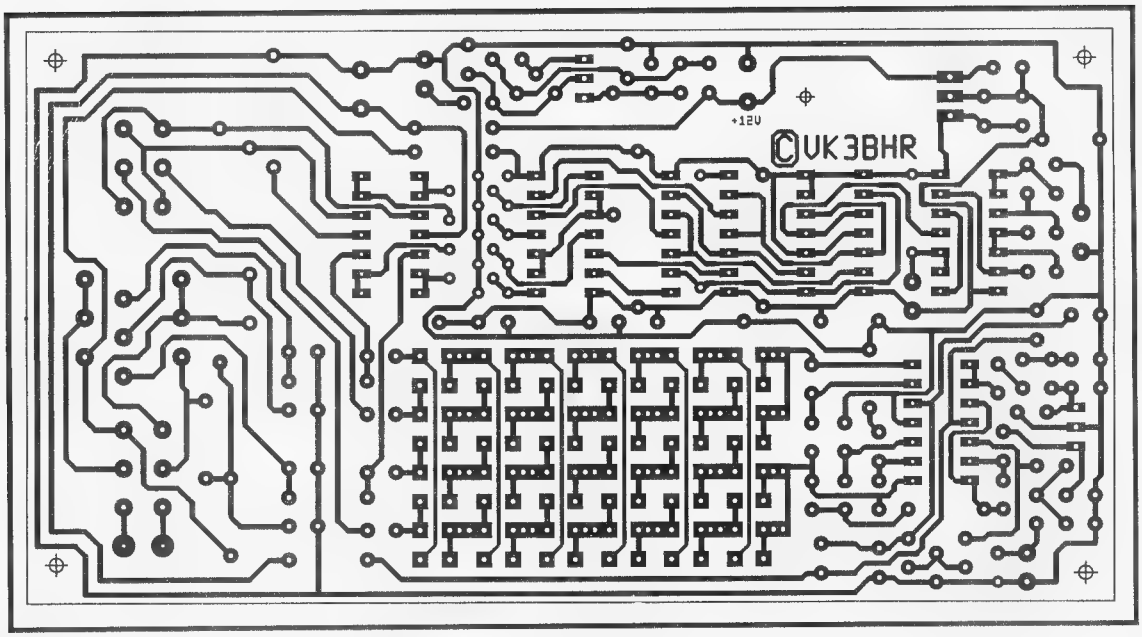

Fig 6 – PC board copper side.

circuit board, or otherwise lashed the SSB generator together, then check carefully that you have followed the circuit diagram (I hope that I have drawn it correctly). The circuit is critically dependent on the four digital signals and the four audio signals arriving at the 4066 in the correct sequence! If the wiring is correct, you should get perfect SSB. If the wiring is wrong, you get perfect rubbish.

Direct Conversion SSB Receiver?

This switching modulator should be capable of acting as a demodulator. This would require reversing the direction of signal flow through the circuit. The problems expected in doing this are, firstly, the attenuation through the sequence network would prevent reception of milli-volt signals, and secondly, to obtain 40 dB of opposite sideband suppression, the signal level through the analogue switch would have to be held below 0.05 V pp. This would result in poor dynamic range. This may be acceptable if the demodulator is used at the output of an AGC controlled IF amplifier.

Parts

Semiconductor List

TL074	2
7805	1
74LS00	1
74AC74	1
74ACT08	1
74HC4066	1

The op-amps are all TL074s. Please don't use LM324s as substitutes for the LM0784s. LM324s usually have bad crossover distortion, lower gain and more noise than the TL074. All of which degrade performance.

For most of the digital ICs, use the fastest CMOS types you can get. At a pinch, LS series devices will work fine, but will limit the upper RF frequency a bit (and degrade the carrier suppression too). The one exception is the 74LS00. Fast CMOS '00s sometimes consume a heap of supply current when biased into their linear region or oscillate uncontrollably: avoid using them in the VFO amplifier.

The capacitors in the sequence network should ideally be matched in groups. This matching influences the opposite sideband rejection. Matching between groups is not so important. The 1 nF capacitors at the output of the sequence network should also be matched as these will influence the opposite sideband rejection at lower frequencies.

Conclusion

The SSB generator presented is easy to get going and produces clean SSB up to 3.7 MHz. Only common parts are used.

On the negative side, the circuit is rather complicated and the upper SSB frequency is limited to about 7 MHz.

The same switching modulator should be useable as a direct conversion receiver by reversing the direction of signal flow through the RF and audio sections.

References

1. J R Hey G3TDZ, "Simple SSB Generator", Electronics Today, August 1979, pp 48-51.

2. J D K West - COMSIG 1991 Proceedings. South African Symposium on Communications and Signal Processing, published by IEEE, New York, USA.

3. M J Gingell, "Single Sideband Modulation Using Sequence Asymmetric Polyphase Networks", Electrical Communications, Vol 48, No 1-2 1973, pp 21-25.

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WIA News

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of December 1997:

L21067	MR R PRICE
L21068	MR J WRIGHT
L21069	MR J T CHRISTOPHER
L60392	MR I J K LANCASTER
L60393	MR P D SOMES
VK2ADU	MR F R JOHNSTON
VK2APA	MR A T PUNCH
VK2AVY	CAPT G A TROTTER
VK2IBT	MR K R STANDEN
VK2JW	MR J WALKER
VK2MT	MR R C MCKNIGHT
VK2ZE	MR L J DAVISON
VK3HL	MR H P TRUTMANN
VK7SM	MR J W DUGGAN

■ Test Equipment

A Simple Transmission Monitor and Interference Sniffer

Drew Diamond VK3XU
45 Gatters Rd,
Wonga Park VIC 3115

By regulation, we are required to ensure that the signals we put to air are of a sufficiently high technical standard so as not to annoy other users of the spectrum. Also, we maintain best chance of good copy at the receive end, especially under rough conditions, if we always strive for a good-quality signal.

To that end, an SSB signal shall not have excessive splatter, hum, noise, FM, and the transmitted voice should be undistorted. Similarly, digital modes should be without excessive clicks, chirp, hum or ripple, noise and thumps, and CW Morse should not be too "soft" nor too "hard". Yet, strangely, some amateurs seem reluctant to report transmission faults to offending stations, perhaps for fear of getting into an argument, or causing ill-feeling (*"no QSL for him – he gave me a T8!"*).

To get a true idea of our transmission quality, the best approach is to monitor right there in the shack, and immediately determine our signal characteristics, without having to rely on (perhaps inaccurate) reports from other stations. A spare receiver may give a pretty good idea, but sometimes the local signal simply cannot be reduced far enough in level to get a true picture. Whatever is done, the signal is just too strong, which overloads the receiver and causes various distortions. And if no spare receiver; what to do?

Here's a handy gadget for checking transmission quality. The input is untuned, so that 3.5, 7, 14, 18, 21, 24 and 28 MHz SSB and digital modes (including Morse, RTTY and packet) may be directly monitored. Sensitivity is such that a one microvolt signal on 3.5 MHz is easily detected and, on 28 MHz, a 10 microvolt signal may be heard, so monitoring a local QRP signal is not a problem. Additionally, the device may be used as an effective sniffer of interference sources around the home (see **Operation** below).

Circuit

A ubiquitous NE602 balanced mixer chip is configured as a product detector to form a simple direct-conversion receiver. The internal oscillator tunes from about 3.5 to 4 MHz with the component values shown. The input is untuned, so that all HF signals are presented to the input of the '602. Harmonics of the oscillator permit reception of signals to at least 32 MHz.

The product-detected signal developed at pins 4 and 5 of the '602 is applied to a conventional LM386 audio chip which is wired to provide maximum audio gain. The sensitivity of the combination is remarkable, in that a 3.5 MHz signal of less than one microvolt is easily perceived, with decreasing sensitivity as the order of signal frequency is raised. However, even at 28 MHz, sensitivity is still good at about 10 microvolts.

Sensitivity is controlled by

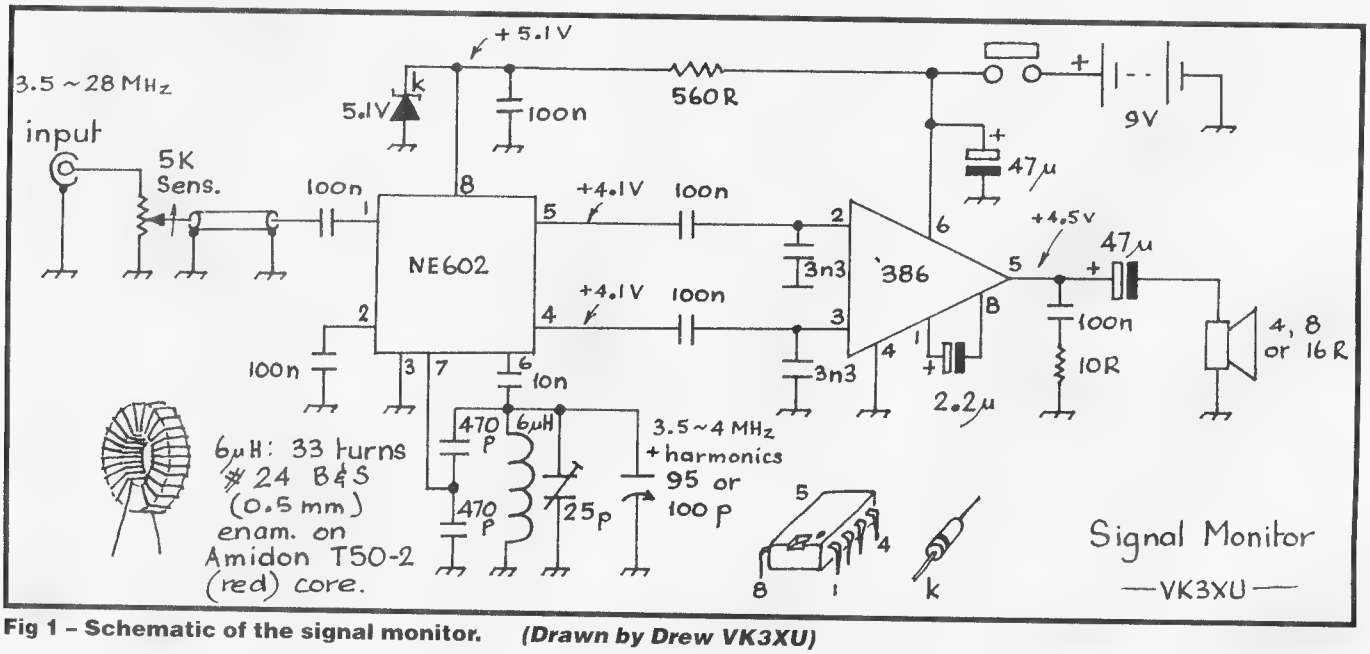
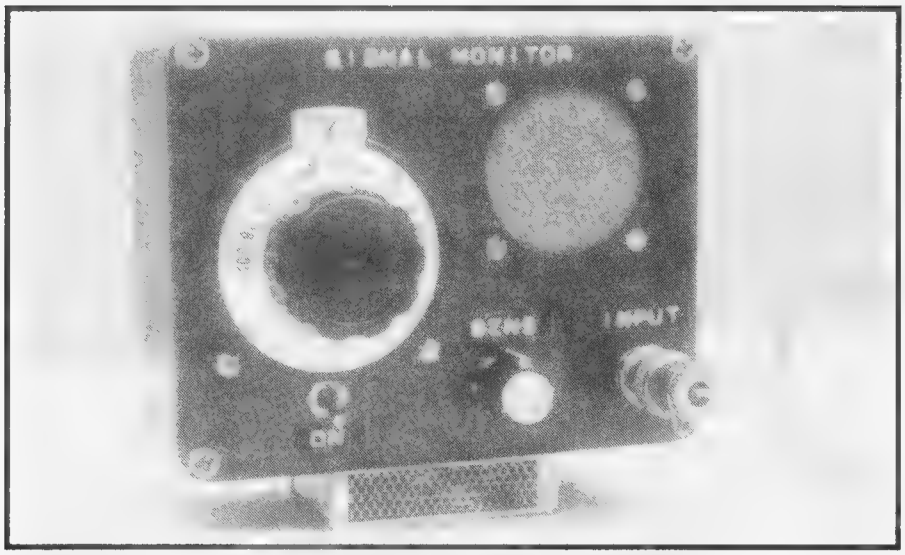


Fig 1 – Schematic of the signal monitor. ***(Drawn by Drew VK3XU)***



The Simple Transmission Monitor and Interference Sniffer.

adjustment of the 5 kilohm potentiometer right at the front end, so that large signals may be effectively reduced to a more appropriate level as necessary.

Current drain from the 9 V battery is about 10 mA.

Construction

To prevent uncontrolled entry of RF energy, and suppress radiation from the local oscillator (which is on your signal frequency, or "sub" harmonic thereof), the device must be housed in an all-metal box. Mine is built in a die-cast box measuring 95 x 120 x 56 mm. An aluminium or double-sided PC board enclosure of similar size would also serve.

A "paddyboard" style PC board (Ref 3) accommodates the two chips and most passive components. A suggested layout is shown, although any favoured method should yield satisfactory results, provided that all components and wiring have reasonably short leads. To ease construction, use wire wrap sockets for the chips if desired.

The components attached to pins 6 and 7 of the '602 comprise the VFO (or local oscillator) circuit, and all rules applying to oscillator construction must be observed for good frequency stability. The finished device is not going to be much good to you if the oscillator is excessively wobbly or drifty. The variable capacitor must be securely mounted, and connected to a reduction drive or vernier. Use 470 pF styroseal or dipped silver mica capacitors for the Colpitts feedback capacitors. Do not use mystery ceramics. The trim capacitor should be an air-spaced type, eg "beehive" or similar.

The six micro-henry oscillator coil should be mounted upon an insulating substrate. A small pad-board rectangle of PC board material is ideal. Cut a small land as described in Ref 3 for connection of the "hot side" of the coil and other tank components. On the remaining area of the pad, carefully peel some copper away to provide an insulated area upon which the coil may be super-glued.

If desired, include a headphone socket connection, wired to cut-off the speaker. However, it was found that headphone operation was not essential, even when checking SSB.

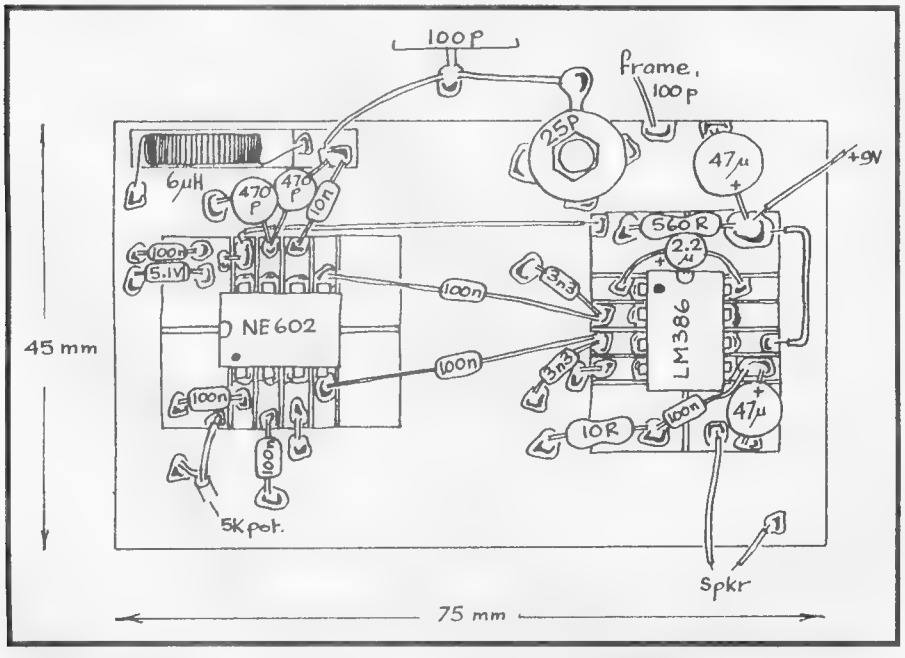
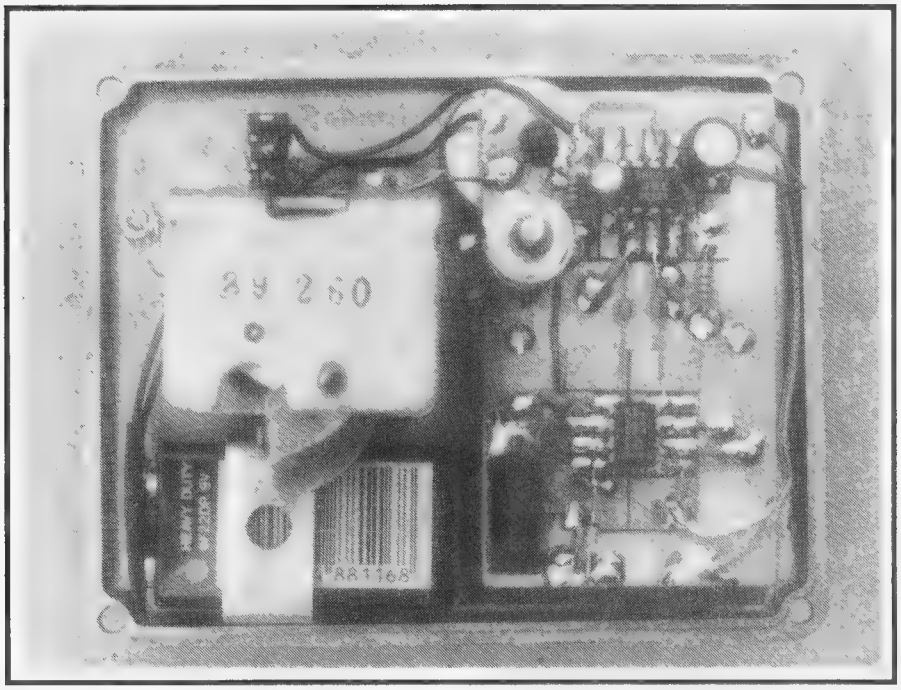


Fig 2 – Component board layout for the signal monitor.

Operation

Before switch-on, check your wiring again, and that all polarised components are correctly oriented. Leave the works exposed for the moment. Connect the battery, and switch-on. There should be just a soft hiss audible from the speaker. Set the 100 pF variable capacitor for maximum C (plates fully meshed). Plug a clip lead or similar device into the antenna input of your station receiver, which is tuned to 3.495 MHz. Place the signal monitor near the clip lead. Now adjust the 25 pF trim capacitor so that the oscillator generates at about 3.495 MHz. Tune the station receiver to 4.0 MHz and check that the oscillator will function to at least that frequency.

For routine signal monitoring, an effective pick-up antenna may comprise a 40 mm diameter coil of three turns of hook-up or enamelled wire fitted to a coaxial plug. A plain piece of wire inserted into the connector provides a larger signal sample; but, for critical monitoring of transmission quality, the signal level is too greatly affected by



Internal view of the Monitor.

body and hand capacity, whereas, by responding mainly to the magnetic (H) component of the field, the loop is largely immune to these undesirable effects.

In use, the monitor may be conveniently placed anywhere on the operating table. With the transmitter keyed on, tune in the signal. Adjust the sensitivity potentiometer for a signal level which does not overload the monitor. If the signal level into the monitor is too large, the oscillator will pull, and give a falsely poor sounding result. As you tune around your SSB signal, it should sound clean, without excessive hum, noise or splatter. Digital modes, Morse for instance, should sound clean, without excessive chirp, clicks, hum or ripple, or phase noise (as hiss, each side of the signal).

For signal or interference sniffing applications, use a plain wire pick-up at first, about 1 m long, plugged into the input. The wire may be draped over one shoulder. The interfering signal or noise is tuned in. Walk around the suspected area, looking for greatest signal strength, using the sensitivity control to reduce the level as you get closer to the source. If necessary, substitute the small loop as you close in on the source. The loop will allow you to identify the actual culprit, be it touch lamp, computer, TV set, faulty thermostat, bug zapper, digital clock, appliance controller, or whatever. Use a larger one-turn loop, about 300 mm diameter, for greater signal sensitivity if required.

Parts

The NE602(AN) and Amidon core are presently available from Stewart Electronics (03 9543 3733), and Truscotts Electronic World (03 9723 3860). The variable capacitor (it has a 95 and a 200 pF gang) may be ordered from Truscotts, and All Electronic Components (03 9662 3506), although any well-made 100 pF will do. The remaining parts should also be available from the above, or any of the other popular electronics component suppliers. No parts are rare. However, if you have genuine difficulty in obtaining any of the specified components, I always keep a few spares, so please write to me at the address shown.

References and Further Reading

1. The Neophyte Receiver; Dillon, WA3RNC in QST, Feb '88.

2. The Sudden Receiver; Dobbs, G3RJV in Practical Wireless, Mar '91.

3. "Paddyboard" Construction, Diamond, in Amateur Radio, Feb '95.

Parts List

Capacitors	Qty
25 pF air variable "beehive" trimmer	1
95 or 100 pF air variable capacitor	1
470 pF styroseal	2
3n3 (3300 pF) monolithic or ceramic	2
10n (0.01 µF) monolithic or ceramic	1
100n (0.1 µF) monolithic	6
2.2 µF 10 V electrolytic	1
47 µF 10 V electrolytic	2
Resistors	
10R 1/4 W	1
560R 1/4 W	1
5 k log potentiometer	1
Semiconductors	
NE602(AN)	1
LM386(N-1 etc)	1
5.1 V or 6.2 V 400 mW Zener	1

Miscellaneous

Metal case to suit (see text), printed circuit board material, 9 V "transistor" battery and connector, on/off switch, miniature speaker, vernier dial, sensitivity potentiometer knob, coax plug and socket, Amidon T50-2 (red) toroidal core, #24 enamel wire, hook-up wire, miniature coax, screws, nuts, spacers, solder etc. **ar**

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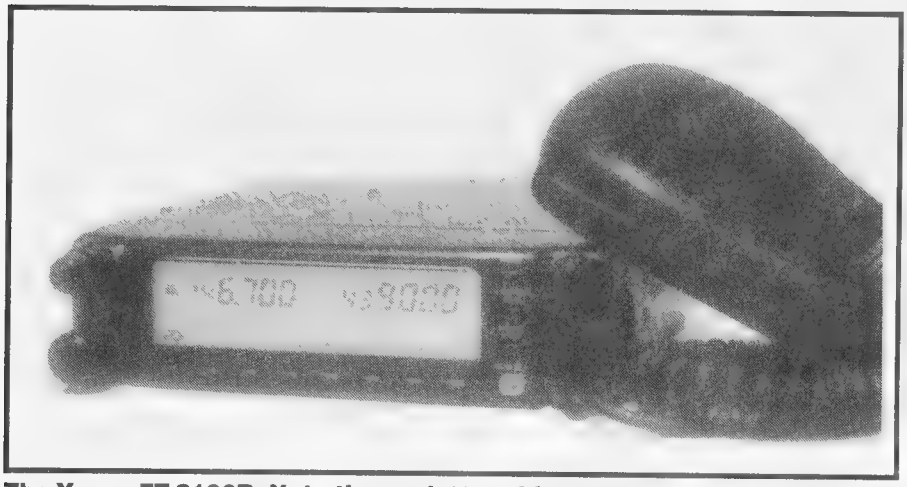
■ Equipment Review

YAESU FT-8100R

Reviewed by Paul McMahon VK3DIP
47 Park Avenue
Wattle Glen VIC 3096



The Yaesu FT-8100R. Note the uncluttered front panel, and how compact the transceiver is in comparison to the standard-sized hand-held microphone. ***(Photo by Vicki VK3LT)***

What Is It?

The FT-8100R is a dual band (2 m and 70 cm) FM mobile transceiver, with up to 50 watts of transmit output power on VHF and up to 35 watts of transmit output power on UHF. The receiver coverage is from 110 MHz to 550 MHz, and from 750 MHz to 1300 MHz (blocked 869 to 894 MHz). The unit is of mid-size (140x40x165 mm) and weight (1.0 kg). The review unit was kindly supplied by Dick Smith Electronics and had the serial number7E022196. Retail price is $899.

First Impressions

This radio is all about Yaesu getting back to basics. The obvious comparison is with the FT-8500 I reviewed about 12 months ago. Gone are the fancy single knob on the box, the complex microphone control, the menus, and the spectrum scanning display and associated gee whiz functions. Instead, with the FT-8100R we have almost the opposite; there is a knob or button for very nearly all functions on the front panel of the set, with effectively no menus. Also, the features have been concentrated, in the main part, in basic RF areas such as the extended receive coverage now rated at up to 1.3 GHz!

As can be seen from the photos the front panel layout, even with all the buttons, is quite uncluttered. The large display is viewable in all lighting conditions and incorporates a nice trick of providing the labels for the row of eight buttons along the bottom. These labels change when the function or shift button is active, so there is little chance of mistaking which button to press for which function.

As is pretty much standard with dual band sets, one half of the display is for each band with separate indications of frequency and signal strength, etc.

The set (via the display) also does something that I have not seen before but which is a really good idea. On power-up, the display briefly shows the DC line voltage. Speaking as someone who has twice blown up finals when a power supply has decided to deliver 18 volts instead of 13.8 (drat those LM723s), this is a great idea.

The only extra I would ask for is an optional interlock that would then disable the transmitter if the supply was outside voltage limits. Once again Yaesu has shown that they are thinking and innovating, introducing features that should become standards.

The microphone connector is, as usual these days, one of those pseudo phone connector plastic click-in things. The microphone looks large but fits the hand well with receive and transmit audio quality that seemed good in subjective on-air tests.

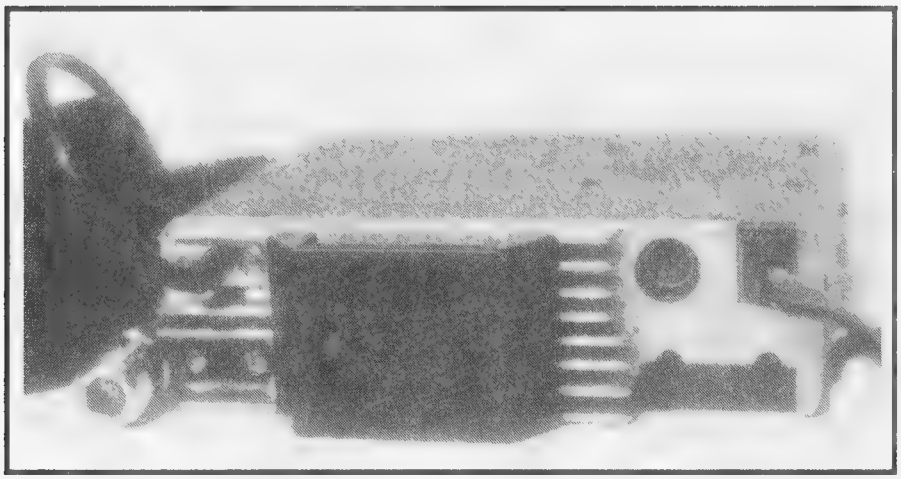
Despite the recommendation in the front of the manual that you should read it through prior to use, I had no problem at all with just powering the set up and using it on-air. The main knobs and buttons did what I expected them to do, and I only had to resort to the manual when testing out some of the fancy memory functions.

The manual is a well written 64 pages of information covering operation of the set in detail, including discussions of such things as coax cable losses and what causes birdies in general coverage receivers. Also included is a full set of circuit diagrams and a quick-guide card. Included in the standard Styrofoam and cardboard box is a mobile mounting bracket, power cable, spare fuse, and miscellaneous nuts and bolts for the bracket.

Technical Bits

The receive frequency coverage of the set is basically a very wide 110 MHz – 1300 MHz with two holes at 550-750 MHz and 869-894 MHz, the latter being the main analogue cellular mobile phone band. The nominal VHF receiver handles 110 to 280 MHz while the UHF one does 280 MHz and up. The segment 110-137 MHz will default to AM reception, however FM can be selected by pressing the appropriate button.

The transmit coverage is 144-148 MHz and 430-450 MHz. This 20 MHz of UHF does not come without some problems as, at least in the set I tested, the auto repeater offset function didn't 100% match the Australian band plans. This isn't a major problem as the auto function can be deactivated and is mainly wrong in the 440-450 region where there is little or no voice repeater activity that I am aware of in Australia. The circuit/block diagram is as good as I am coming to expect from Yaesu.



A rear view of the FT-8100R showing the solid die-cast heat-sink with the integral thermostatically-controlled fan. ***(Photo by Vicki VK3LT)***

The specifications describe the set as a double conversion superhet with a 45.05 MHz and 58.525 MHz first IF on VHF and UHF respectively, with both bands using a 455 kHz second IF. Sensitivity for 12 dB SINAD is claimed as less than 0.18 µV for a main receiver but only less than 0.25 µV when a sub receiver. These figures (as are the selectivity, spurious, and image rejection) are on a par with other like boxes. These figures are, in fact, exactly the same as that of the FT-8500.

Rated audio output is 2 watts, and subjectively sounded clear and clean. For the transmitter the rated power outputs were 50, 20, and 5 watts on VHF, and 35, 20, and 5 watts on UHF (ie more or less the standard for this class of set these days). Peak current drain at maximum rated power out is given as 10 amps at 13.8 volts, which is actually a bit less than usual. For example, the FT-8500 was rated at over 11 amps for the same power output.

Thanks to some decent test equipment obtained courtesy of Charles Edmonds VK3CLE, I was able, in this case, to investigate a bit further just what these claimed figures meant. Basically, the story that surfaced was that within the ham bands this set performs very well; outside the ham bands performance falls off but is still usable. For example, at 435 MHz the claimed sensitivity for 12 dB SINAD is better than 0.18 µV; in fact I measured it at 0.15 µV which is actually about 1 dB better than that. If you are interested, at 435 MHz with 0.18 µV I got 17 dB SINAD.

Once you move out of the ham band, though, things change quite drastically. At 485 MHz, for example, the figure obtained for 12 dB SINAD was 0.25 µV which is what was claimed for the sub receiver. This was not what I had thought was meant by sub receiver. I had equated this with the option of V/V or U/U, that is using both halves of the set on the same band. When I tested this feature, however, I found that it was worse again, giving, for example, 0.5 µV for 12 dB SINAD when using the nominal VHF receiver at 435 MHz.

Unfortunately, I was unable to test accurately the reception at 1296 MHz. It could certainly receive signals but I have nothing even remotely calibrated at that frequency (hint to Charles and other generous souls!). I suspect it was a bit deafer than the 0.25 µV, but I could be wrong.

We can make sense of these measurements by looking at the circuit for the receivers. Basically the incoming signal is split via high and low pass filters between two independent receivers, one via the low-pass for nominally VHF, and one via the high-pass for UHF and SHF. Each receiver has multiple front ends feeding virtually identical wide-band double balanced mixers and IF chains. In each case there is one front end dedicated just to the appropriate ham band, and one or more front ends for a wider range of frequencies. For VHF the ham band front end is track tuned and all others are fixed tuned.

The more narrow band tuned front ends obviously produce better results than the less tuned more scanner-like front ends, thus the better than 0.18 µV for 12 dB SINAD for the main band receiver (ie ham specific front end), versus the better than 0.25 µv for the sub band receiver (ie same receiver but with the wider band less tuned front end).

The extra 6 dB loss in V/V or U/U mode can also be seen to be a function of the way it is achieved. If, for example, you wished to have both receivers tuned to somewhere in the two metre band (ie V/V operation), the normal VHF receiver will utilise the optimised or narrow band ham front end while the UHF receiver, rather than using one of its front ends, will be connected to the VHF receiver's wide band front end. The extra switching losses account for the 6 dB.

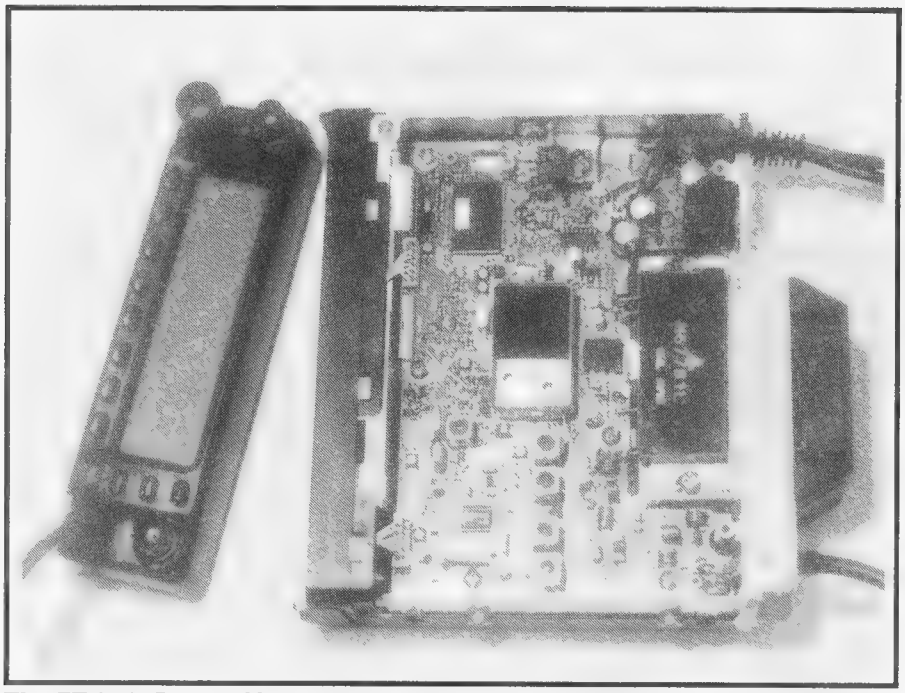
The circuit is very similar to that of the FT-8500, with two exceptions, both in the receiver area. In the FT-8100R there is a third front end in the UHF case for SHF reception, and secondly the Double Balanced Mixers are active using a pair of FETs rather than passive using a four diode ring.

Operation

As can be seen in the photo, the set has a solid die-cast heat-sink on the rear with an integral fan. This fan is thermostatically controlled and, while the noise is noticeable in a base station environment, it would not be when mounted in a car.

The set has only a single flying lead N type coax connector for both bands. This is very convenient when using a dual band antenna. However, an optional diplexer is available if you are going to use this set as a base station with separate antennas for each band.

The manual contains a good section on installation and general use of the set, including, as a sign of the times and the current awareness of the possible hazards of RF, a section on safety containing items such as "Do not use directional antennas in any locations where humans or pets may be walking in the main directional lobe, and during vehicular operation when stopped in a parking lot, etc", and "make it a practice to switch to low power if there are people walking nearby". The one about



The FT-8100R out of its case and with the front panel removed. Note that the inside of the box is quite empty looking with extensive use of surface mount and miniature components. ***(Photo by Vicki VK3LT)***

not wearing earmuff headphones while driving I must admit, though, gave me a bit of a chuckle. If you are concentrating that much on hearing the stations down in the noise then you certainly shouldn't be trying to drive at the same time, headphones or not!

The set has a total of 203 memories (103 per band). This is roughly twice the number of the FT-8500 but, while they all still store frequency, repeater shift, and tones, there is no alphanumeric naming of memories. Tuning step sizes of 5, 10, 12.5, 15, 20, 25, or 50 kHz are available. All of the usual VFO and memory scanning features, as well as DTMF paging, etc, are available (with the optional CTCSS module installed).

One nice new feature is the ability to do what is called a smart search. This feature is normally found on scanners and is like a normal VFO scan. However, as it finds frequencies in use, instead of stopping, it just saves the frequency away in a set of special memories (up to 50 per band, 25 below where you started 25 above) for later human evaluation. On review of these memories you can choose to place them in a standard permanent memory or discard them. I found this particularly useful when scanning the wide band receive range looking for signals at the small step size; this can take quite some time so it was nice to be able to set it going and walk away, then come back later and review what had been found. I presume it would also be a help in contests where you are trying to find where everybody is.

While the set can be set up to work in either a one-way or two-way cross band repeater mode, there is the basic limitation that you cannot transmit on both bands at the same time. Receiving on both bands at once is fine, there are even separate external speaker sockets on the rear if you want to have VHF come from one speaker and UHF from the other.

The transmit limitation does, however, lead to one non-obvious (at least it was to me) limitation of the set when used for Packet Radio. While the set, in common with most new ones these days, has a data connector for both 1200 and 9600 baud TNCs, it can only be used with whatever band happens to be the main one at the moment. That means you cannot be chatting away on two metres while down-loading some messages from a bulletin board on 70 cm. Packet needs the transmitter, not just the receiver. I suspect this limitation is present in most, if not all, of the sets on the market today.

The photos show that the front panel can be removed and (with the appropriate optional cable) remotely mounted for both security and ease of finding dashboard space to mount it. Also, you can see from the photo that the inside of the box is quite empty looking with extensive use of surface mount and miniature components. Unfortunately, while this obviously keeps the costs down and the reliability up, it does make it a bit hard for the average ham to fix or modify the rig themselves, even with the circuit diagram provided.

Conclusion

Yaesu have come up with a really good work-horse mobile rig here. At the right price I could see lots of them being sold.

ar

WIA News

Morse Code Fades on Blighty's Shores

The first of January marked the end of the use of Morse code for ship-to-shore communications in the UK. It first rose to prominence after Marconi saw the potential of wireless as a communications medium for ships at sea.

On the last day of 1997, farewell messages were transmitted in Morse on 500 kHz but, in the midst of these, a genuine emergency SOS on the frequency was very nearly dismissed as a hoax!

Satellite communications are replacing low and medium frequency technologies in maritime distress applications, as satellite technologies have proved more reliable and require far less operator intervention, according to the RSGB's *GB2RS News* for 11 January 1998.

The abandonment of Morse code for maritime distress communications in Australia won't come for 12 months or more, according to the National Search and Rescue Authority in Canberra.

[Released 13/1/98]

AWARDS

The WIA Awards Program

John Kelleher VK3DP – Federal Awards Manager
4 Brook Crescent, Box Hill South, VIC 3128
Phone (03) 9889 8393

Awards are an important and exciting part of the activity of amateur radio, and the spirit of competition and achievement in earning awards has helped the leisure time activity of amateur radio grow into the marvellous hobby/sport activity it is today. The WIA provides several attractive awards, which are available to all radio amateurs.

General Rules

Cost: Free to all WIA members. VK non-members pay $AUS5.00 and all others are required to pay $US5.00 or 8 IRCs.

Verifications: Applicants need to hold QSL cards for contacts claimed. However, do not send cards with your application. A list of all contacts is needed which should contain the following information: date, time (UTC), callsign of station contacted, frequency, and mode. In some cases, country identification may also be required.

Contacts should be listed in alphabetical order of callsign prefix. At the bottom of this list should be a declaration signed by an official of a recognised Society, or by two independent licensed amateurs. Signatories to the declaration should clearly indicate their names and callsigns.

Applications

Applicants should clearly state whether they are WIA members and, if so, list their membership number. Where relevant, changes in callsigns and dates of such changes should be indicated.

All contacts for any particular award should be made from the same call area.

Cross-band contacts are not eligible, nor are those made through terrestrial repeaters, from aircraft, or to or from sea-going vessels.

Where a fee is payable, this should be included with the application.

In cases of dispute, the decision of the Federal Awards Manager and two officers of the Federal WIA on the interpretation of the above rules shall be final and binding.

Applications should be sent to: Federal Awards Manager, 4 Brook Crescent, Box Hill South VIC 3128 Australia.

WIA DXCC Award

This award is available to all amateurs who submit evidence of having worked and confirmed 100 countries, and can be endorsed for various bands or modes. Acceptable countries are those listed for ARRL DXCC with the WIA reserving the right to make different decisions in regard to additions and deletions which are listed from time to time.

Having obtained the DXCC Award, holders may register subsequent claims for higher totals, and these will be published in *Amateur Radio* in the form of a ladder. Stickers are awarded to those who achieve Roll of Honour status.

Should a "country" be deleted from the DXCC list, credit for that country will be allowed if worked before the date of deletion. The DXCC ladder will show the member's tally of current countries and a total of current plus deleted countries, eg 200/220 – meaning 200 current countries, and an extra 20 that have been deleted at some time, but were worked before the date of deletion. All claimed contacts must have been made from the same DXCC country. General rules apply.

Worked All VK Call Areas

Known as the "WAVKCA", this colourful certificate is the WIA's most popular award. There are separate requirements for local and overseas amateurs. VK applicants require 73 contacts as follows:

VK0 – 3 contacts from at least 2 different areas.

VK1 – 3 contacts on at least 2 different bands.

VK2, 3, 4, 5, 6 and 7 – 10 contacts from each call area on at least 3 different bands.

VK8 – 3 contacts on at least 2 different bands.

VK9 – 4 contacts from at least 3 different areas.

General rules apply except VK applicants need not hold QSL cards.

DX applicants require only 22 contacts as follows:

VK0, VK1 – 1 contact from each call area.

VK2, 3, 4, 5, 6 and 7 – 3 contacts from each call area.

VK8, VK9 – 1 contact from each call area.

Contacts must have been made after 1 January 1946. General rules apply.

Heard All VK Call Areas

This is a "heard only" version of the WAVKCA award, available to SWLs on the same basis as to licensed amateurs, the same fees and procedures applying. Again, general rules apply.

Worked All VK Call Areas (VHF) Award

Requires 22 contacts on VHF bands as follows:

VK0, VK1 – 1 contact each.

VK2, 3, 4, 5, 6 and 7 – 3 contacts from each.

VK8, VK9 – 1 contact each.

Contacts must have been made after 1 January 1958.

If the applicant moves to a new location, and this new location exceeds a distance of 240 km from the old, a new application will be necessary for the new QTH. General rules apply.

Worked All States (VHF) Award

Requires 8 contacts on VHF bands (50 MHz and above), one contact with each State and Territory listed:

VK1 – Australian Capital Territory.
VK2 – New South Wales.
VK3 – Victoria.
VK4 – Queensland.
VK5 – South Australia.
VK6 – Western Australia.
VK7 – Tasmania.
VK8 – Northern Territory.

General Rules apply.

Australian VHF Century Club Award

Requires 100 contacts on VHF bands (50 MHz and above) with 100 different stations, at least 70 of which must be Australian stations.

Separate awards will be issued for each different VHF/UHF band. Contacts must have been made on or after 1 June 1948. The same rules apply, as in the previous award, where the applicant moves to a new location in excess of 240 km from the old.

WIA Antarctic Award

Applicants need to make ten confirmed contacts with amateur stations conducting valid operations from Antarctica. The 10 must include stations licensed by at least six different government authorities, and one must be from VK0.

Antarctica is defined as the land mass, including islands and the permanent ice shelf, below 60 degrees South latitude (this, therefore, excludes Heard and Macquarie Islands).

Only contacts on or after 23 February 1988 are valid for this award. General rules apply.

WIA Grid Square Award

Applicants require contacts with "Maidenhead" grid square locators as listed below. Grid squares are designated by a combination of two letters and two numbers. Minimum requirements are:

All HF bands (including WARC) – 100 contacts.

50 MHz – 50 contacts.

144 MHz – 30 contacts.

432 MHz – 25 contacts.

1296 MHz – 10 contacts.

13 cm and above – 5 contacts.

Cross-band, repeater, satellite or other relay methods are NOT permitted. Aeronautical or maritime mobile stations are also excluded.

Mobile operation is encouraged to allow such operators to work from 100 different locators.

Only contacts made on or after 1 January 1990 qualify for this award. General rules apply.

Changes in the Allocation of International Callsign Series

As most will have noticed, the DXCC information and countries list was excluded from the current *Australian Call Book*. The following list includes allocations of call sign blocks which may or may not have been included in previous WIA lists:

EKA – EKZ Armenia
A8A – A8Z Liberia
ATA – AWZ India
AYA – AZZ Argentina
BAA – BZZ China
C4A – C4Z Cyprus
DSA – DTZ S Korea
E2A – E2Z Thailand
E3A – E3Z Eritrea
EKA – EKZ Armenia
EMA – EOZ Ukraine
ERA – ERZ Moldova
ESA – ESZ Estonia
EUA – EWZ Belarus
EXA – EXZ Kirghiz
EYA – EYZ Tajikstan
EZA – EZZ Turkmenistan
H2A – H2Z Cyprus
H3A – H3Z Panama
H6A – H7Z Nicaragua
H8A – H9Z Panama
HNA – HNZ Iraq
HWA – HYZ France
J4A – J4Z Greece
JZA – JZZ Indonesia
L2A – L9Z Argentina
LYA – LYZ Lithuania
MAA – MZZ UK & N Ireland
OKA – OLZ Czech Republic
OMA – OMZ Slovak Republic
P3A – P3Z Cyprus
P5A – P9Z N Korea
PKA – POZ Indonesia
T4A – T4Z Cuba
T5A – T5Z Somalia
T6A – T6Z Afghanistan
T8A – T8Z Palau
T9A – T9Z Bosnia & Herzegovina
TDA – TDZ Guatemala
THA – THZ France
TMA – TMZ France
TOA – TQZ France
TSA – TSZ Tunisia
TVA – TXZ France
UAA – UIZ Russian Federation
UJA – UMZ Uzbekistan
UNA – UQZ Kazakhstan
URA – UTZ Ukraine
UUA – UZZ Ukraine
V6A – V6Z Micronesia
V7A – V7Z Marshall Islands
VAA – VGZ Canada
XJA – XOZ Canada
XQA – XRZ Chile
XSA – XSZ China
XYA – XZZ Myanmar
YLA – YLZ Latvia
YMA – YMZ Turkey
Z3A – Z3Z Macedonia
ZNA – ZOZ UK & N Ireland
ZQA – ZQZ UK & N Ireland
2AA – 2ZZ UK & N Ireland
3EA – 3FZ Panama
3GA – 3GZ Chile
3HA – 3UZ China
3ZA – 3ZZ Poland
4AA – 4CZ Mexico
4DA – 4IZ Philippines
4JA – 4KZ Azerbaijan
4LA – 4LZ Georgia
4TA – 4TZ Peru
4VA – 4VZ Haiti
5CA – 5GZ Morocco
5JA – 5KZ Colombia
5LA – 5MZ Liberia
5PA – 5QZ Denmark
6AA – 6BZ Egypt
6CA – 6CZ Syria
6DA – 6JZ Mexico
6KA – 6NZ S Korea
6OA – 6OZ Somalia
6PA – 6SZ Pakistan
6TA – 6UZ Sudan
6XA – 6XZ Madagascar
6ZA – 6ZZ Liberia
7AA – 7IZ Indonesia
7SA – 7SZ Sweden
8AA – 8IZ Indonesia
8OA – 8OZ Botswana
8SA – 8SZ Sweden
8TA – 8YZ India
8ZA – 8ZZ Saudi Arabia
9AA – 9AZ Croatia
9BA – 9DZ Iran
9EA – 9FZ Ethiopia
9WA – 9WZ Malaysia

DXCC Listings

As at 1 January 1998

Phone – Roll of Honour

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VK3QI	328/341
VK4OH	328/334
VK3DYL	328/333
VK5QW	328/332
VK4LC	327/373
VK3AKK	327/338
VK2FGI	327/332
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VK6RO	302/307
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VK3IR	295/298
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VK2WU	292/296
VK4BG	287/302
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VK3VU	272/275
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VK3GI	264/267
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VK3DQ	127/141
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VK6NV	111/113
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C21DJ	109
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VK3EHP	103/105
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VK4LW	105
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ZS6IR	102/104
KB2NEK	102/103
C21NJ	102
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VK4BP	100
ON4BCM	100

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VK3DQ	218/245
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VK4ICU	208
VK4DP	205/216
VK6MK	202/204
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VK6PY	191/194
VK6HW	179/182
VK4CY	178
VK5GZ	175/177
VK7TS	163/164
VK5BO	159/184
VK5UO	156/157
VK3DNC	154/157
VK4XJ	150/163
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VK3AGW	119/120
VK4CMY	117/118
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VK5BWW	110/111
VK6NV	109/110
OK1FED	109
VK5QJ	107/109
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DXCC Open Roll of Honour

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VK3AKK	327/338
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VK4RF	326/361
VK6HD	326/351
VK4UA	325/340
VK3JA	324/371
VK3AMK	323/341
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VK5BO	264/301
VK4LV	263/270
TF5BW	260/264
VK4ICU	257/259
VK7TS	253/254
VK6ANC	247/250
VK5UO	241/244
VK2CWS	239/241
VK2ETM	239/240
VK6APW	239/240
VK3DQ	233/262
VK4XJ	233/249
VK4DA	222/224
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VK6MK	209/211
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VK5GZ	185/187
VK3DNC	185/187
VK2BQS	180/183
PR7CPK	174/175
VK6NV	172/173
VK4CHB	160/162
VK2NO	158
VK8XC	150/152
VK6LC	142/144
VK2SPS	142/144
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VK4NJQ	133/139
VK4EZ	129/138
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VK3OZ	104/105
VK3COR	102/104
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■ Novice Notes

Amateur Radio on the World Wide Web

Peter Parker VK1PK
7/1 Garran Place, Garran ACT 2605
Email: *parkerp@pcug.org.au*
Novice Notes Online: *http://www.pcug.org.au/~parkerp/nonline.htm*

Introduction

The Internet contains a huge amount of information on nearly all facets of amateur radio. A barrier to accessing all this material is the time taken to search for the information you need, particularly if you pay by the minute for your on-line time.

This article provides information on a number of Web pages of interest to the newcomer to amateur radio. With this article, you will be able to access information on many aspects of amateur radio without having to first use search engines and wade through dozens of unwanted listings.

News, Information, Education and Software

Australian Amateur Radio Frequently Asked Questions (FAQs)

http://www.ozemail.com.au/andrewd/hamradio/hamfaq.html

Maintained by Andrew Davis VK1DA, this page is your first stop if you are just becoming interested in amateur radio. As its name suggests, it provides answers to questions people commonly ask about amateur radio. Armed with this knowledge you are then ready to look at sites such as *Novice Notes Online*, which provides more detailed information on various facets of amateur radio.

Australian Radio Amateurs on the Internet

http://www.mpce.mq.edu.au/~guy/amateur.html

Do amateurs you know have an e-mail address and/or a personal Web page? Find out by visiting this site. Information on this site is fairly current – it is regularly updated by Guy VK2BBF.

DOS computer programs for the radio amateur

http://www.cdrom.com/simtel.net/msdos/hamradio.html

The Simtel.Net MS-DOS Collection contains numerous programs of interest to the radio amateur, SWL and electronics buff. There's dozens of ideas to make your old XT or 286 computer earn its keep around the shack.

Elmers online

http://www.novia.net/~pschleck/elmers/

"Elmer" is an American term for an amateur who helps newcomers study for their licence and get set up on air, much like what we'd call a mentor. If you don't have one but are bursting with questions, you can now get help from a number of amateurs with e-mail who have volunteered to be "Internet Elmers". The list of Elmers is divided by country and operating interest to ensure that you can direct questions to the person best able to answer.

Ham Radio Online

http://www.hamradio-online.com/

A very comprehensive US-based amateur radio news service with reports of current events and articles on key issues facing the Amateur Service. Well worth a read.

K3TKJ's guide to amateur radio mailing lists

http://www.qth.net/

If you decide to specialise in one or two narrow aspects of amateur radio, you may wish to keep in touch with like-minded enthusiasts around the world. For this purpose the use of an Internet mailing list is ideal. The above URL provides a detailed guide to lists specific to various facets of amateur radio.

WIA NSW Bookshop and WIA NSW Eduction Service

http://marconi.mq.edu.au/wia/bookshop.html

This page provides details of books and educational material (including the Novice Study kit) stocked by the NSW Division of the WIA. Prices and titles carried should be similar in other states; enquire with your local Division.

Licensing Information

Australian Communications Authority

http://www.aca.gov.au

This page contains advice on regulations and licensing conditions applicable to the Amateur Service in Australia. There is also information on calculating multi-year licence fees, but I challenge anybody to get a correct result! A frames-capable browser is required to view this page.

Amateur radio organisations

Most WIA Divisions have their own web sites. The comprehensiveness and currency of pages varies between states. To see what your Division offers net surfers, type in the appropriate URL below.

WIA ACT
http://www.vk1.wia.ampr.org/
WIA NSW
http://marconi.mpce.mq.edu.au/wia
WIA VIC
http://www.tbsa.com.au/~wiavic/
WIA QLD
http://www.wiaq.powerup.com.au
WIA SA
http://www.vk5wia.ampr.org/
WIA WA
http://www.faroc.com.au/~vk6wia/
WIA TAS page under construction

In addition, some clubs have their own web sites. These are not listed here but links to them can be found on some WIA Divisional sites.

The New Zealand Association of Radio Transmitters (NZART) has a comprehensive web page containing news and links on amateur radio in New Zealand and beyond. Its URL is *http://www.nzart.org.nz/nzart/*. Young Amateurs New Zealand also has a page at: *http://www.nzart.org.nz/nzart/yanz/index.html*.

Operating

Australian amateur radio band plans

http://www.vk5wia.ampr.org.wia/bandplan/index.htm

Very detailed information on each amateur band from 1.8 MHz to many GHz. These band plans are produced for all Australian amateurs and provide information on what modes are used on what frequencies. Operating according to them increases the likelihood of you making contacts and reduces the possibility of causing interference to others.

CW Facts and Operating Tips

http://www.magiclink.com/web/shurst/page2.html

Maintained by KA7NOC, this page includes a range of material on Morse (CW) operating. There is also advice on learning Morse code.

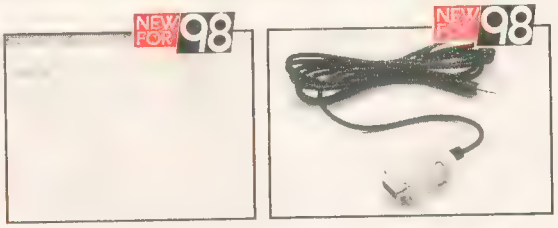
YOUR ONE STOP COMMUNICATION SHOP

Advanced Data Management Software

An advanced way to programme many of the functions on the latest Yaesu handheld and mobile transceivers. Each package consists of an interface that plugs into the serial port of a PC and connects to the transceiver via its microphone socket (for hand-helds) or its Packet socket (for mobiles). Also provided is easy-to-use 3.5" format PC software with pull down menus that allow for programming and naming of memory channels, selection of output power, CTCSS tones, scan and battery saver operation, plus much more.

D-3753 ADMS-1D Suits FT-10/11/50/51R/VX-1R
D-3759 ADMS-2D Suits FT-3000M/8000R/8500/FT-8100R

$79.95



FT-50RD 2m/70cm Handheld

The Yaesu FT-50RD is an amazingly compact 2m/70cm Amateur band handheld transceiver which provides MIL-STD 810 shock and vibration resistance, super wideband receiver coverage, simple menu settings for most functions, and compatibility with the optional Yaesu ADMS-1D software/interface package for PC programming of many functions.

Other features include:

- Tx 144-148MHz, 430 - 450MHz
- Rx 76-200, 300 - 540, 590 - 999MHz (cellular blocked)
- New FTT-12 keypad provides Digital Voice Recording, DTMF paging, CTCSS/DCS scanning, and CTCSS encode/decode.
- 2m/70cm RF output: 2.5, 1.0, 0.1W standard, up to 5W with 9.6V battery or adaptor.
- "Omni-glow" LCD screen for easier night-time viewing
- 112 memory channels with 4 character Alpha-numeric naming
- High speed scanning, 12v DC socket, Digital Code Squelch
- Dual watch allows monitoring of sub-band activity
- Direct FM modulation for better audio quality
- 5 battery saving systems (includes Rx and Tx Save, and Auto Off)
- Rear panel clamshell battery pack
- Comes with FNB-40 slimline 6v 650mA/H Nicad battery pack, flexible 2m/70cm antenna and modified M-9626 AC plugpack adaptor for Nicad charging.

D 3660 **2 YEAR WARRANTY**

$599

FT-736R VHF/UHF Base Station Transceiver

Whether your interest is in talking through your local repeater, operating SSB DX, or talking to the world via satellite, this high-performance multimode base station transceiver can do it all! In its standard form, the FT-736R provides 25W output on the 2m (144-148MHz) & 70cm (430-450MHz) bands in SSB, CW, and FM modes. Can be expanded to cover the 6m (50-54MHz) & 23cm (1240-1300MHz) bands by installing optional modules.

Features:

- Keypad frequency entry, 100 memories, selectable FM channel steps
- 2 full-duplex VFOs - transmit & receive frequencies (and modes) can be tuned independently or synchronously for satellite operation.
- Adjustable IF Notch and IF Shift filters, Noise blanker, 3-speed selectable AGC.
- Speech processor and VOX for SSB, Digital input connection for packet TNCs.
- Efficient switch-mode AC power supply. D 2920

SAVE $700

$1995

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B 3252

COMMUNICATE MORE CLEARLY WITH THESE

Revex W570 HF/VHF/UHF SWR/PWR Meter

Top of the line performance! The W570 provides switchable 1.6-160, 400-525, 700-1100, and 1240-1300MHz coverage, with measurement of 3 power levels (5, 20, 200W) and SWR. The external UHF sensor uses N-type sockets for minimal loss, and can be mounted remotely for easier cable connection to the meter. Measures 120 x 80 x 155 (including protrusions).

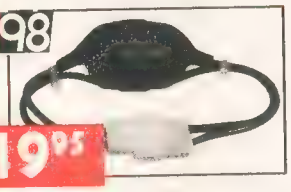
D 1377

$299

LF-1 DC Line Filter

A line filter designed to reduce noise (such as alternator whine) from the 13.8V DC lead that runs between a Yaesu transceiver and the 12V power system in a vehicle. Rated at 20A intermittent, 18A continuous. The LF-1 is compatible with a number of Yaesu transceivers including the FT-212RH/712RH/912R, the FT-2200/2500M/2400H, FT-5200/8000R/FT-8100R/8500 and FT-3000. D 5390

NEW FOR 98



$19.95

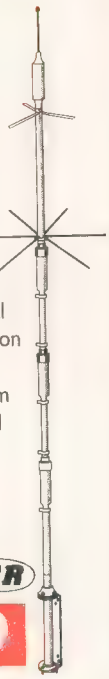
3-15V 25 Amp DC Power Supply

This rugged benchtop power supply is ideal for Ham or CB applications, with current up to 25 amps ICAS at 15V, 20 amp continuous at 13.8V, and lower current at lower voltages. It also has front panel metering, plus high current banana-style and low-current output connections for extra flexibility. An internal heatsink and thermally-switched fan provides cooling without protrusions in the metal case (which measures 320 x 150 x 145mm). Specially modified for more reliable long-term operation, it uses a rugged 50 amp bridge rectifier and trifilar transformer. Also provided is extensive overload protection through dissipation limiting circuitry for the pass transistors, a 30 amp instantaneous current limit, AC mains circuit breaker, a transformer thermal fuse and fused auxiliary secondary winding. D 3800

$299

Rugged HF 5-Band Trap Vertical Antenna

The rugged 5BTV incorporates Hustler's exclusive trap design (25mm solid fibreglass formers, high tolerance trap covers and low loss windings) for accurate trap resonance with 1kW (PEP) power handling. Wide-band coverage is provided on the 10, 15, 20, and 40m bands (SWR typically 1.15:1 at resonance, <2:1 SWR at band edges) with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m resonator kit can be installed without affecting operation of other bands. High strength aluminium and a 4mm (wall thickness) extra heavy-duty base section guarantee optimum mechanical stability. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike other antenna designs, the 5BTV can be fed with any length of 50 ohm coax cable. D 4920



HUSTLER

$349

30m Resonator Kit

Adds 30m coverage to the 5BTV and includes all hardware. D 4921 **$89.95**

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That's where you go

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Ionospheric Prediction Service
http://www.ips.oz.au/

Obtain information on the current state of radio propagation, sunspot forecasts and do your own propagation predictions. Just a few of the attractions available through the IPS site.

KA9FOX Contest and DX Site
http://www.qthcom/ka9fox/

A useful resource for contesters and DXers, this page contains material on exchanging QSL cards, contest rules, DX bulletins and more.

OH2BUA DX Cluster
http://www.clinet.fi/~jukka/webcluster.html

See who's hearing who (sorted by amateur band) with this DX cluster. Also, use it to alert others of the appearance of rare DX (only after you've worked him first!). A wide range of DX and operating links are available through this award-winning site.

Predicting propagation on the VHF/UHF bands
http://homepages.ihug.co.nz/~tbabel/zl3ne.htm

ZL3NE gives some pointers on using weather charts to predict long-distant VHF and UHF propagation. Mainly of interest to the weak-signal SSB/CW operator.

QRZ Online Callbook
http://www.qrz.com/cgi-bin/webcall

If you don't have an International Callbook or CD-ROM handy, this site is a useful way to get the names and addresses of stations you work. Simply type in the callsign and the QRZ site does the rest. Both Australian and International addresses are available through this system, though the Australian listings are not always up to date.

Radiosport – the home page of radio contesting in VK4
http://www.uq.edu.au/radiosport/Rules/index.htm

Produced by Peter Wetziz VK4TPW and John Loftus VK4EMM, this is an excellent page for those devoted to the competitive side of amateur radio. Contents include contest rules, monthly contest reports, band plans, a calendar, shareware and operating hints. Much of the information has been written with the beginner in mind. Highly recommended.

Equipment Manufacturers and Suppliers

Most of these pages include details of products stocked, store addresses, prices and ordering information.

Manufacturers
Alinco – *http://www.alinco.com/*
Icom – *http://www.icomamerica.com/*
Kenwood – *http://www.kenwoodcorp.com/*
Ten-Tec – *http://www.tentec.com*

Retailers
Amateur Transceiver Radio Centre – *http://www.australia.net.au/~atrc*
Daycom Communications – *http://www.daycom.com.au/*
Dick Smith Electronics – *http://www.dse.com.au/*
Mobile One Antennas – *http://www.mobileone.com.au*
Outbacker Antenna Sales – *http://intercon.com.au/outbacker*
Ron Graham Electronics – *http://www.mackay.net.au/~ron/*
Tower Communications – *http://www.tower.visionimage.com.au*

Antennas

G3YCC's Antenna Page
http://www.gqrpclub.demon.co.uk/ants.htm

Maintained by a well-known QRP enthusiast, this page is part of a larger web-site that covers all aspects of low power amateur radio. Constructional articles on pieces of antenna test equipment, masts, mobile whips and various wire antennas feature on this page.

GW0TQM's magnetic loop antenna page
http://ourworld.compuserve.com/homepages/csl/magloop.htm

If you've been avidly following the discussion on compact antennas in recent *Novice Notes* columns, this page devoted entirely to magnetic loops will be of special interest. Though the theory may get too deep for some, the page, which contains several excellent graphs and diagrams, is a "must see" for anyone interested in these fascinating antennas. Also provided is an exhaustive bibliography on magnetic loops for the experimenter who wants to know more. Highly recommended.

N1KGH's Indoor Antenna Page
http://www1.shore.net/~dmaison/faqs/carpetloop.html

Information on a novel "carpet loop" antenna for short wave listeners.

SM0VPO's antennas for 70 cm

On his website, SM0VPO includes details of the popular Slim Jim, co-linear and J-pole antennas scaled for the 432 MHz band. See later for the full description and URL for this page.

W4RNL's Amateur Radio Page
http://funnelweb.utcc.utk.edu/~cebik/radio.html

This page, produced by a prolific antenna experimenter and author, takes some time to load, but the information provided is well worth the wait. Material is presented on a variety of wire antennas and beams. In addition, detailed information on antenna modelling is provided. This page would be most useful to the amateur, who having got on air with simple verticals and dipoles, is seeking to improve station performance by experimenting with other antennas. Though the technical content gets a bit advanced in places, the page does have an excellent series of articles pitched at novice operators establishing a station on 28 MHz. Topics such as compact and hidden antennas, effect of antenna height, antenna coupling units for 28 MHz and Yagi antennas are just a few of the subjects covered.

W6RCA's Home Page
http://people.delphi.com/CecilMoore/

This page includes constructional information on a "bugcatcher" mobile antenna as well as data on popular wire antennas including loops, beams and the G5RV. Also presented is a novel multi-band dipole for eighty to ten metres.

Technical

Amateur radio construction projects
http://www.pconline.com/~rohrwerk/k0jd/

K0JD's construction project home page.

Amateur radio construction projects
http://www.acs.ncsu.edu/HamRadio/HF/qrp/projects/

More projects for you to try.

How good is your black box's receiver?
http://sherweng.com/table.html

New rigs don't necessarily have the best receivers. This site provides performance comparisons between most popular models of amateur equipment. See how your rig stacks up against the rest.

JF1OZL's Homebrew Homepage
http://www.intio.or.jp/jf1ozl/

Contains a range of unusual transmitter circuits that are amazing in their simplicity, but seem to work, as testified by the log extract provided. The page is of particular interest to six metre AM and DSB operators, but it should be possible to modify some of the 50 MHz projects to 28 MHz. Page content is bilingual (Japanese and English).

SM0VPO/G4VVJ Homebrew Homepage
http://user.tninet.se/~acz732k/

This page contains many circuits for those who like building things. Projects range from the simple to the advanced and the ordinary to the novel. As noted elsewhere, this page includes constructional information on antennas for the 70 cm band.

SM6LKM's "Optimist" 80m DSB transceiver
http://home4.swipnet.se/~w-41522/

This page contains the information needed to build a simple eighty metre double sideband transceiver.

7N3WVM's Homebrew Homepage
http://www.qsl.net/7n3wvm/

This is another useful page for people who like building equipment. The twin crystal variable crystal oscillator is of particular interest.

Tomi Engdahl's Electronics Info Page
http://www.hut.fi/Misc/Electronics/

An Internet version of those old "500 circuits" electronics books. If you like building things, this page is worth a look.

WIA (SA) Equipment Supplies Committee
http://www.dove.net.au/~markl/sa_vhf/esc_index.htm

This is another useful page for the home-brewer, particularly those who build VHF/UHF and SHF equipment. Along with a range of hard-to-get components, a range of transverter kits is carried for those wanting to make existing equipment operate on different bands.

Packet Radio

Macquarie University Amateur Radio-Internet Gateway
http://www.marconi.mpce.mq.edu.au/

This gateway is used for experimentation with various types of packet radio linking and for WICEN purposes. Worth reading if you're a packet enthusiast.

Flex-net packet radio software
http://dl0td.afthd.th-darmstadt.de/~flexnet/index.html

Apparently, with some of this software featured (which you can download), it is possible to operate packet radio with a computer equipped with a sound card. Computer experts will like this page, but others will be flummoxed.

How packet radio could aid African development
http://www.sas.upenn.edu/African_Studies/Comp_Articles/African_Info_Age.html

Written by Gary Garriot of the Volunteers for Technical Assistance, this page provides an interesting account on the uses to which packet radio can be put for humanitarian purposes in Africa.

N6GN's High Speed Packet Home Page
http://www.tapr.org/~n6gn/index.html

If the speed and efficiency of the Internet has caused you to lose interest in packet radio, you may want to look at this page. Ideas and links on high speed packet radio operation are included. Again mainly for those with prior experience in packet radio.

Other Facets of Amateur Radio

Adventure Radio Society
http://www.natworld.com/ars/

This society exists for those who wish to operate radio from locations accessible via human-powered transport.

AM Radio Page
http://www.thebizlink.com/am/

This is a US-based page for amateurs who enjoy operating AM on the HF and VHF bands, particularly with vintage equipment. A good read.

Bicycle mobile amateur radio
http://cycling.org/lists/bikeham/

Contents of the bikeham mailing list. Occasionally has useful hints for those who operate amateur radio from a bicycle.

Foxhunting around Melbourne
http://www.ozemail.com.au/~amac/fox.html

For people who like chasing hidden transmitters around (or in) the Yarra.

Low power amateur radio (QRP)
http://www.pcug.org.au/~parkerp/qrp.htm

The Australian QRP Home Page is devoted entirely to under five watt amateur radio. Included is operating hints, advice on equipment, information on the CW Operators QRP Club and more.

Short-wave
http://www.ee.mu.oz.au/staff/pbd/SW/index.html

A very comprehensive page on short wave listening from an Australian perspective.

Ten metres
http://www.Lehigh.EDU/lists/tenten-l/

This is the site of Ten-Ten International, a world-wide body that promotes activity on ten metres. With sunspot numbers on the up, this will be a useful page over the next few years.

Use a remote-controlled shortwave receiver
http://www.chilton.com/scripts/radio/R8-receiver

Hear how the bands sound like from the other side of the world. Sound card needed.

VK3ASE's 160 m AM Home Page
http://www.geocities.com/CapeCanaveral/7160/

A good use for your spare AM medium wave broadcast receiver, particularly if your Division relays its news broadcast on 1.8 MHz AM, is to convert it to receive 160 metres. This page tells you how. Also featured is information on late-night 160 metre activity of a somewhat unconventional nature.

WICEN NSW Home Page
http://marconi.mpce.mq.edu.au/wicen/

An informative page providing information on the Wireless Institute Civil Emergency Network in NSW. A "must read" for those interested in amateur radio's role in civil emergencies.

ICOM Clearly Ahead

"VK3LZ calling!"

More sound information from your friends at Icom.

'98 IS THE YEAR OF THE 746!
Icom's new IC-746 is proving to be one the most significant new product launches in years. The response from the radio fraternity all around the country has been tremendous. The general consensus seems to be that the IC-746 is about the best cost/performance shack unit they've seen. See it for yourself at your nearest authorized Icom dealer soon.

THE WORD IS OUT - OUR NEW HANDHELD TRIBAND IS A WINNER.
Our IC-T8A Triband (2m, 6m, 70cm) is a brilliant new transceiver. Once again Icom has got the cost/performance equation just right with the IC-T8A setting a new benchmark in handheld performance for a very affordable outlay. Hear it for yourself, and check the price...you'll be impressed!

WYONG HAMFEST HERE AGAIN.
The end of February is Wyong Hamfest time so be sure to get along. It's a great opportunity to see all the latest gear we've been enthusing about in this column recently.
We look forward to seeing you there.

"...73"

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Xtal Set Society
http://www.midnightscience.com/

A great site for people who experiment with crystal set receivers of all types.

Conclusion

A range of web page URLs on various facets of amateur radio has been presented. Many more can be obtained through the links section of many of the pages listed here. In addition, extra material on many of the topics covered above is available through *Novice Notes Online*, the URL for which is provided at the head of this article.

Further Reading

Amateur Radio has featured a number of articles on the Internet over the last two years. The more significant of these include:

McGhie, W – Getting on the Net, *Amateur Radio*, August 1996

Murnane, R – A Radio Amateur's Guide to the World Wide Web, *Amateur Radio*, July 1996

Murnane, R – Internet Radio Mailing Lists and How to Use Them, *Amateur Radio*, October 1997 **ar**

Novice Plus

Helping you get more from amateur radio

John Moyle Contest Next Month

A reminder that the John Moyle Field Day Contest is on next month. The contest exists to promote portable operation on the amateur bands. On VHF and UHF try listening around the FM simplex calling frequencies. HF activity will be found on 80 metres on the Saturday evening and Sunday morning, and (possibly) on 15 and 10 metres during daylight and evening hours. It takes place over the weekend of 21 and 22 March. Information about portable operation appeared in *Novice Notes* for February 1997, copies of which can be found on *Novice Notes Online*.

WIRELESS INSTITUTE OF AUSTRALIA

Your Hobby Your Voice

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QSP News

Reciprocal Licence and Special Event Call for Astronaut

An Australian "reciprocal licence" with a "Special Event" callsign has been provided for use by Dr Andrew (Andy) Thomas (see front cover photo) whilst aboard the space station MIR.

Based on a suggestion from Peter VK2EMU, the South Australian Division of the Wireless Institute of Australia (WIA) negotiated with the Australian Communications Authority (ACA) for issue of the licence under reciprocal agreement, based on Andy's USA Technician Class licence and call of KD5CHF.

The President of the WIA SA Division, Ian VK5QX, stated that the ACA officers with whom he dealt were most co-operative in handling the requests placed before them.

The special call sign allocated, VK5MIR, is taken from the block of callsigns from which "Novice" calls are usually assigned; however, in this instance, it has been issued with Australian "Intermediate" class licence privileges as being equivalent to the USA Technician Class.

Andy Thomas was born in the city of Adelaide, which is the capital of the State of South Australia (VK5). He carries Australian citizenship as well as the US citizenship required due to his occupation. Following recent intensive training in Russia for his forthcoming mission on MIR, he was able to visit Adelaide over the Christmas/New Year period to see his family and for a much welcomed rest and recreational period.

During this visit an attempt was made using amateur radio to contact his compatriot Dave Wolf KC5VPF aboard MIR as it passed over Adelaide. Unfortunately, this was not successful.

Ian VK5QX was able to meet with Andy and personally present to him his licence together with various forms of "briefing" material regarding Australian Amateur Radio stations known to be well equipped for contact in connection with space operations. Recent copies of *Amateur Radio* magazine, the official journal of the WIA, were included in the material provided.

In receiving the licence, Andy Thomas commented that it was interesting that the date of issue of the licence was the same as his birthday, 18 December.

The licence is issued for a one year period. However, the ACA has indicated that it will be prepared to issue a callsign from the normal allocation on the completion of Andy's activities on the MIR space station. This would provide Andy with the ability to operate on a reciprocal basis within Australia at other times when visiting this country.

The launch for Dr Thomas to join the MIR space station took place on 22 January 1998, and he boarded MIR on the 24th.

On a biographical note, Dr Thomas obtained his Bachelor of Engineering degree with First Class Honours from the University of Adelaide in 1973. He subsequently took postgraduate studies towards his Doctorate, obtained in 1977. He was employed in the USA with Lockheed Aeronautical Systems in Marietta, Georgia and Jet Production Laboratories, Pasadena California before reporting to the Johnson Space Centre for astronaut training in August 1992.

Ian J Hunt VK5QX
WIA VK5 Division President

Amateur Radio Awards for 1997

After some lively discussion at their January meeting, the WIA Publications Committee decided the *Amateur Radio* awards for 1997. They are:

Technical Award (for the best technical article(s) for 1997):

Dr T C Choy VK3CCA, for his article "The DB 80, an 80 m SSB/CW QRP Transceiver"

Higginbotham Award (for service to amateur radio generally, not necessarily to the magazine):

Peter Parker VK1PK, for his substantial contribution to *Amateur Radio* magazine during 1997, including his bi-monthly *Novice Notes* column and seven separate articles, and his informative amateur radio pages for Novices and QRPers on the Web.

Congratulations to Dr Choy and to Peter, who will each receive a cheque for $100.

Bill Rice VK3ABP
Chairman, Publications Committee
ar

We'll Meet Again

I know we have only just started 1998 but, with the years getting shorter all the time, you really must write these dates in your diary NOW (not this year's diary!). The dates are, of course, for the next ALARAmeet on 2 and 3 October 1999 in Brisbane (pack the togs and plenty of sunscreen). Bev VK4NBC will be in charge, and I am sure she would love to hear from anyone with ideas on how to make this Meet as good or better than all the others.

Special Lady – Christine WB2YBA/VK4AZJ

In May last year Christine E Haycock MD was selected by the American Medical Women's Association (AMWA) to receive the 1997 Bertha Van Hoosen Award. This award honours a woman physician who has been an active member of AMWA for at least five years, and has demonstrated exceptional leadership and service to the organisation. It commemorates the achievements of Bertha Van Hoosen, the physician who founded AMWA in 1915. The Awards Ceremony took place at the Opening Session of AMWA's 82nd Annual Meeting in November in Chicago, Illinois.

Dr Haycock has demonstrated substantial leadership and commitment to the cause of women in medicine. After years of service on AMWA committees and executive board positions, Dr Haycock was elected president in 1980. Her initiatives during her term as president brought about the restructuring of the organisation in order to promote AMWA's goals. Dr Haycock continues her role as an AMWA leader by serving on the American Women's Hospital committee.

A pioneer among women surgeons, Dr Haycock was the first woman intern in the US Army, and was Board Certified in surgery in 1961 at a time when very few women had such certification. She was also one of the first women to command two Army Reserve hospital units and, in 1977, became the first woman to be class president at the Army War College. In addition to her BS and MD degrees, Christine holds an RN and an MS in Political Science. She retired recently as Emeritus Professor of Surgery from UMDNJ, New Jersey Medical School.

Dr Haycock is a nationally esteemed surgeon and is highly reputable in the speciality of sports medicine. Among her published works are over forty papers on women's sports injuries.

The American Medical Women's Association is an organisation of over 11,000 women physicians and medical students representing every medical speciality. The Association, which has its headquarters in Alexandria, VA, is dedicated to increasing the influence of women physicians and promoting women's health care.

ALARA

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JOTA 1997

Many YLs take part in JOTA each year, and the photograph shows Bev VK6DE with some of the Guides and Brownies who operated from her shack in Geraldton WA. Bev supervised over 50 girls on the air that weekend with some of the older ones setting up tents on the lawn to camp overnight.

Silent Keys

Bobbie VK7CBK and Diana ZS6GH. Our sympathy goes to their families.

Stormy Weather

Heather VK2HD suffered days of 45 degrees with unusually high humidity last year. She opened her windows to try to catch a stray breeze but the breeze brought a dust storm through the house as well. Three months previously an electrical storm wiped out Heather's washing machine, damaged her radio and turned her hot water cold. She had no hot water for five weeks.

The last we heard her radio was half working. The receiver worked but not the transmitter. In fact, when she pressed the transmit button the rig switched off! Heather kept listening to the nets she used to be on, but really missed the contact. Almost every day for the past twenty-five years she has had a chat to Pearl ZL2QY (Pearl is in a nursing home) so we hope Heather is back on air by now.

ar

Bev VK6DE and some of the Guides who operated from her station during JOTA 1997.

Are you reading someone else's *Amateur Radio*?
Call 03 9528 5962
to find out how to get it every month!

Education Notes

Brenda M Edmonds VK3KT
Federal Education Co-ordinator
PO Box 445
Blackburn VIC 3130

Morse Exams

Recently I received a letter from a student trying to get his Morse receiving up to speed. He felt that the WIA was not paying enough attention to the methods of teaching CW, and suggested improvements to the examination processes.

I have not written about CW for some time. I DO NOT intend to enter the debate about the continuation of Morse code as a requirement for an amateur licence. For the moment, it is a requirement which candidates must pass, and so we must do what we can to help those who are attempting it.

Perhaps I should start by explaining that the Federal body of the WIA has neither authority over, nor responsibility for, Divisions, Clubs or individuals who run amateur radio classes. Negotiations with the ACA concerning examination syllabuses and procedures are a Federal responsibility, but the classes or courses are offered either to encourage recruits or possibly as a money-making exercise. The WIA can advise on, but not control, how the classes are run.

Learning Morse code seems to be a very personal thing. Some people can learn it in hours, while others need months of continual effort to achieve the required speed. There are not many candidates who are completely unable to learn it, but it is easier to learn if you want to learn, or at least accept that it is a hurdle to be overcome. Some candidates find a musical background to be an advantage, and there is some evidence that young persons learn faster than older.

As for how to learn, there are several accepted procedures. One school of thought recommends learning the alphabet from A to Z in order by singing *"d'dah – A, dah d'd'dit – B"* and so on. Another method is to *learn "dit – E, d'dit – I, d'd'dit – S, d'd'd'dit – H"*, then *"dah – T, dahdah – M, dahdahdah – O"*, on the principle of progression of letters. A further alternative is to think in pairs of opposites, eg *"d'd'dah – U/dahdahdit – G"*, and *"d'd'dah dit – F/d'dahd'dit – L"*.

Personally, I recommend the first method (straight through the alphabet). I feel the other methods rely on associations between letters and bring an extra process into the chain. After the letters are known, then it is just continual practice. Best results are usually gained from daily practice; even ten minutes a day is better than two hours per week.

Once the letters are known, concentrate on increasing the speed. If you do not recognise a letter, let it go and listen for the next. Better to leave a space and get the next letter than to lose several letters worrying about the one missed. If you find that you are journalising, try writing down the letters with your eyes shut, or practise from tapes in a foreign language or random five-letter groups.

Many students find that they tend to "plateau" at about 8 wpm, then pick up speed again in a few weeks. Few students have trouble with the sending. It is not advisable to start sending until you are confident of all the letters and can receive at about 3-5 wpm.

The WIA Exam Service Morse code examination texts send the characters at higher speeds. For the 5 wpm, the characters are sent at 7 wpm, and for the 10 wpm, the characters are sent at 13 wpm. In each case, the spaces between the characters are increased to make the required speed correct overall. There is some evidence that characters sent at 14 – 16 wpm, whatever the overall text speed, would suit some students better.

The WIA Exam Service has long intended to release ex-exam tapes as practice material. However, this cannot be implemented until the current negotiations with the ACA are completed and agreement has been reached on the future of amateur examinations.

Please accept my somewhat belated wishes to you all for 1998. May you each succeed in bringing another amateur into the WIA and so strengthen our influence in all those areas where numbers count so much.

ar

Pounding Brass

Stephen P Smith VK2SPS
PO Box 361 Mona Vale NSW 2103

Local and International Radio Contests

Contesting is one branch of our hobby that we can all participate in and enjoy whether we are beginners or advanced operators. Contests can range in duration from one hour for local events to a full weekend in the case of international events.

Most affiliated organisations of the IARU such as the WIA, RSGB and the ARRL offer a range of contests that suit the needs of most radio operators, including internal and external contests (internal contests are within one's own country; while, in external contests, contacts can be made with other countries).

Peter VK3APN is the Federal Contest Co-ordinator for the WIA and outlines many local and international contests in his *Amateur Radio* column. In Peter's column you will find information that includes the date and duration of the contest (usually held over a weekend), and a summary of the contest's rules which should be read and understood prior to entering the contest.

Basically, you select a contest which is within your own capabilities. Unfortunately, this doesn't always happen, resulting in some operators jumping straight in without realising the consequences. A common sense approach to contesting is called for.

Firstly, I would start with locally held events. One that comes to mind is run by the "CW Operators QRP Club Inc". Scrambles are held once a month and are of one hour duration. All you have to do is contact the operator in question (he usually calls CQT [T = test, short for contest]), and give an RST plus a serial number that increases with each contact (nothing to it!).

You will find this is excellent training for the more advanced contests of longer duration.

The most important thing for the up and coming contester is to keep a log of all contests entered, learn from your mistakes and make notes on how you can improve next time.

The Shack

Some operators are fortunate enough to have a separate room at home where they can operate in peace away from the family. Others, who live in home units, may be restricted in this sense due to space. The ideal shack would be cool in summer and

warm in winter; if you have air conditioning all the better. I guess a lot of us operators will have to regulate our body temperatures by adding or removing clothing until we find the happy medium.

While you are operating at your desk or bench you do not want to be getting up all the time to locate pens, writing pads and log books, etc. All these items should be situated on the desk within easy reach during a contest with the remainder of the desk/bench area clear. Do you have adequate lighting for your area of operation? If not, you may want to purchase a small desk lamp, a very useful item.

About a week prior to a contest have a practice run and think of ways that may improve your operation; but, for goodness sake, do not leave it until the night of the contest. If you have an understanding XYL she can bring you refreshing cups of coffee or tea and something to munch on during the longer events. If you don't have someone to look after you, a good thermos and prepared sandwiches, etc should see you through the contest.

Attention to detail, no matter how small, pays off in the long run. As stated previously, after the contest is over, analyse your performance and make notes on things you may want changed or improvements that you feel could be made for future contests.

Equipment

Ensure your equipment is in good working order. If you are using valve gear, tune up about an hour prior to the event, making sure you are on the correct frequency. If you are using solid state gear, tune up about twenty minutes prior to the event as this will allow the rig time to heat up and settle down.

Antennas should be in good condition and correctly adjusted for minimum SWR as we require maximum power radiated.

What type of key should you use? Definitely the key you are accustomed to using and not the new key you recently purchased; we all know that a new key will take some breaking in before you begin to feel comfortable with it.

If you are using semi-autos such as Vibroplex bugs, make sure it's correctly adjusted and tested prior to the event; there is nothing worse than an incorrectly adjusted bug. Electronic keyers and paddle combinations should be checked and adjusted if required.

The following is an account of what happened to me during the 1992 VK/ZL Oceania Contest. Several weeks prior to the event I purchased an MFJ-422B-X keyer and paddle combination. With this model the keyer screws onto the rear portion of the paddle assembly. About two hours into the contest everything was working like clockwork, when suddenly I lost power in the unit. After a hasty check of the unit I found that the 9 V battery had gone flat.

I could not connect my hand key as I had used the stereo plug for the keyer/paddle combination. I was faced now with the problem of locating a Philips head screwdriver and a new 9 V battery.

Yes, you guessed it. I didn't plan for an emergency like this; I was up the creek without a paddle!

I have since made modifications and now have the battery attached to the outside of the unit for ease of replacement. Also, I have my hand key wired in parallel with the connections. Sorry for the VK4 station I was working at the time. As you can see I learned by my mistake, especially when it cost me a contest.

To Reiterate

1. Keep a detailed record of all contests.
2. Analyse all details up to and after the contest.
3. Learn by your mistakes.
4. Have fun!

Next month, "Zero Beat".

ar

How's DX?

Stephen Pall VK2PS
PO Box 93, Dural NSW 2158

Samuel Morse

Poor Samuel Finley Breese Morse, the well known(?) portrait painter (1791 - 1872) who studied Art at Yale College and in London, and whose paintings were hung in the New York City Hall and in the New York Public Library!

He became world famous, not for his artistic ability which was considerable, but because he learned, during a dinner conversation at sea on board the ship "Sully" in 1832, that men had found they could send electricity instantly over any known length of wire. From that moment on, Morse devoted most of his time, not to paintings, but to the idea of the electric telegraph.

After many setbacks, and some help from interested friends, the first practical demonstration of his electric telegraph took place on 24 May 1844 when he sent the message *"What hath God wrought"* on a telegraph line from the Capitol in Washington DC to nearby Baltimore. Morse and his telegraph were known within 12 years throughout North America and Europe. The Morse code was developed and named after him. It was first used over railway wires and later, with the development of "wireless apparatus", over the air.

Its use revolutionised communications at sea, then between continents; its most intensive use was during World War II.

As if acting in union, the Australian media (press, radio and television) buried the use of Morse code on 30 December 1997. The "burial" was caused over the misinterpreted news, that HM Coastguard in Britain will no longer receive messages in Morse. *"France and the United States have already stopped listening and Australia and the rest of the world will follow suit in just over a year's time"*, said the *Sydney Morning Herald.*

What the media did not clarify was that phasing out the use of Morse code as from 1 February 1999 refers to the sending of Morse code distress signals on maritime distress frequencies.

Morse code was, and still is, being replaced as a general communication system in maritime communications with the satellite-assisted Global Marine Distress and Safety System (GMDSS), and with satellite telephone systems.

However, Morse code and its use is not dead, and will never die!

Listen around with the help of a general coverage receiver on any part of the spectrum and you will detect hundreds, even thousands of stations using Morse code, the well known CW signal which will reach any part of the world with a minimum of power when the popular voice communication fails.

The *Sydney Morning Herald*, however, acknowledges that *"... in Australia amateur radio operators are among the keenest continuing users"* (of Morse code).

Ian Hunt VK5QX, President of the South Australian Division of the WIA, came to the defence of Morse code, as quoted in the *Sydney Morning Herald* and on Sydney commercial radio stations, saying: *"If you*

are on a sinking ship at sea, and everything is broken, you can still tap two pieces of wire together and send a signal from the transmitter."

Nepal - 9N1NE and 9N1BFI

I have received a telegraphic style of note from Neil VK6NE about his short trip to Nepal accompanied by Joe VK6BFI. Here are the main points:

"We were in Nepal from 14 to 23 December legally licensed at a cost of $195.00 each to operate on 14 and 21 MHz only (and we complain about our licence costs!). We operated from the QTH of Dick 9N1ARB who is leaving Nepal sometime around March 1998.

"Propagation was patchy with the usual bedlam of calls from Europe on any frequency which we activated. The S meter stayed steady on 20 over 9 from 14200 to 14210 kHz. Joe admonished the Europeans time and time again in Italian, but to no avail. Kathmandu is in a valley at 4500 feet (1371 m) surrounded by hills of 20,000 feet (6096 m). Horizontal polarisation of signals causes them to need a curve upwards to escape the valley (Hi!).

"I visited the Ministry of Tourism and Communications as the President of the WIA and spoke with the top level officers. Unfortunately, the Minister had not returned in time for his appointment with me. However, establishing our credentials with the Ministry, and offering help and aid in the examination area, was well received.

"To obtain an amateur licence in Nepal, after having passed the examination you have to obtain permission from the police, from the military and the Communication Minister. Hopefully, you are in their "good books". We were told that, over a period of time, 47 Nepalese (9N1) callsigns had been heard by the ministry's monitoring system and very few of these were legal.

"To help the indigenous local amateurs 9N1AA and 9N1HA, the VK9XZ Island Hoppers Group (to which I belong) has sent a TNC and a 2 m 100 ch unit to them. Import duty is 110% on the value of the radio equipment."

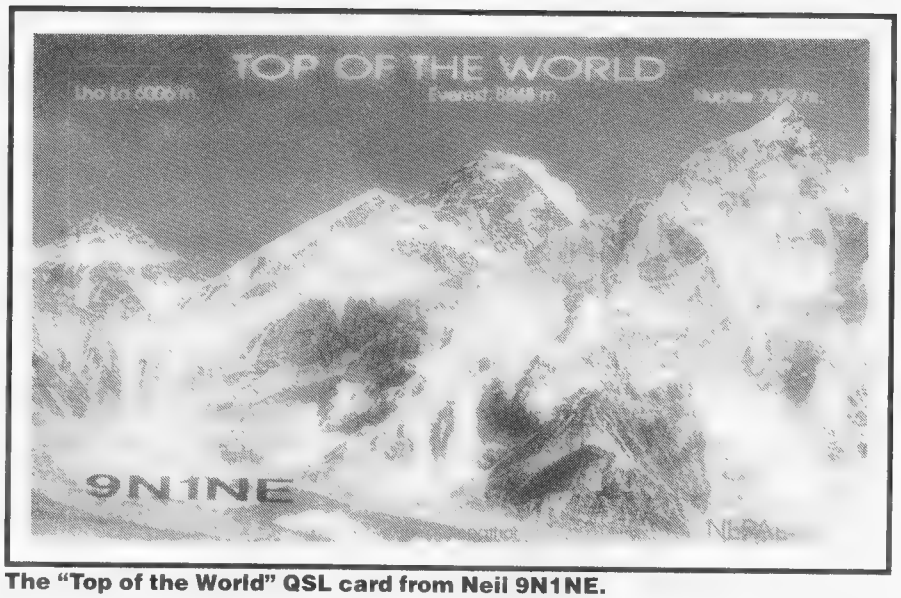
Andaman Islands - VU4 OR VU7?

At the Tenth Regional Conference of the International Amateur Radio Union, Region 3, which was held in Beijing, the capital of the Peoples Republic of China, from 8 to 12 September 1997, each member country had to present a report about the status of the hobby in that country.

I am quoting now from the official report submitted by the Indian delegation:

"We have been receiving numerous enquiries about VU7 operations from Andaman, Nicobar and Lakshadweep Islands. The Government of India, in its wisdom, does not grant permission for amateur operations from there, based on security considerations. In the past, permission was granted to a few Indian operators to transmit from Port Blair. Such permission is rarely granted to Indian operators, but never to non-Indian DXers.

"Mr P Subramanian VU2JPS, a Government official with the national broadcasting agency, All India Radio, was posted to Port Blair in 1994. After endorsing his licence in December 1994 for operation from his new QTH, the Ministry of Communication was approached by security agencies to withdraw the permission. Accordingly, since May 1998 the operations by VU2JPS from Port Blair cannot be considered as 'authorised' by the administration. Mr Subramanian has, however, never been reported to have used the prefix VU7 for his QSOs."



The "Top of the World" QSL card from Neil 9N1NE.

Bangladesh - S21XX

Exactly one year ago, a German group activated Bangladesh 'the land of the Bangals'. The three members of the group, Dietmar DL3DXX, Joe DL8WPX/YB1AQS and Hannes DL3NEO, arrived at a remote village north of Dhaka, the capital of this 55,598 square metre giant delta, formed by the rivers Ganges and Brahmaputra.

The group aim was to concentrate their activity on the low bands and to operate mainly in the CW mode. The call S21XX was active from 2 to 18 February 1997. A 66 ft (20 m) high, top-loaded vertical antenna was erected with elevated radials, and six other antennas. Power was supplied by a 7 kW generator.

The DXpedition was very successful with 12,839 QSOs on nine bands. The group worked more than 150 countries and made 923 QSOs on 160 metres, 2,552 on 80 metres and 2,924 QSOs on 40 metres. The bulk of the contacts was on CW (11,756 QSOs) with only 622 SSB and 461 RTTY contacts.

Interestingly, only 213 contacts were made with the Oceania Region, which includes Australia and New Zealand. Dietmar, who worked from the Cocos-Keeling Islands some time ago as VK9CR, and Joe who previously was active as VK9XY, departed to New Guinea on 14 February and were active as P29VXX, while Hannes continued as S21XX until 18 February. Response to the group's effort was positive, judging by the comments made by the DXers scattered around the world, but a good part of the success was attributed to the official help given by the friends from BARL, the Bangladeshi Amateur Radio League.

Spratly Islands 9M0C - AS-051 (IOTA)

A multinational group of DXpeditioners, primarily members of the UK's Chiltern DX Club, the UK DX Foundation, will operate from Layang Layang Island (also known as Swallow Reef) in the Spratly group. The team includes amateurs from the UK, USA, Australia, and East and West Malaysia.

The activity will take place from 12 to 24 February on all bands on SSB, CW, and RTTY, and will include six metres. The team will use a wide selection of mono-band and multi-band antennas, including four square arrays for both 40 and 80 metres. The callsign will be 9M0C. Yaesu offered the use of four FT-1000MPs and two FT-920s.

Proposed frequencies are: SSB - 1845, 3805 (QSX down), 7080, 14195, 18145, 21295, 24945, 28495 and 50145 kHz; CW - 1824, 3502, 7002, 10107, 14022, 18072, 21022, 24892, 28022 and 50102 kHz. All activity will be "split" (up) with the exception of 80 m SSB where the split may

also be down to accommodate other regional interests.

On CW it is hoped to contain the pile-up within 5 kHz and on SSB within 20 kHz. QSLs will be available via the Bureau (RSGB) or direct. QSL manager is Phil Whitchurch G3SWH, 21 Dickensons Grove, Congresbury, Bristol, BS19-5HQ, England.

Future DX Activity

- Members of the Czech DX Foundation will be active from various places in the Pacific from 18 February to 1 April.
- Gerard F2JD/HP1XBI is active in Panama until mid-March.
- Cedric HB9HFN and Daniel HB9DLZ will be on the air from Tonga (A35FN and A35LZ), and later from Western Samoa, from 5 to 10 February. Activity mostly on CW. QSLs via home calls via the Bureau.
- A Finn group will activate Guatemala between 18 January to 5 February using the call TG0OH. QSL via OH3JF.
- Antigua V2 will be put on the air by three US operators from 23 February 2 March. Callsigns are not known yet.
- A group of Belgian amateurs will operate from Libya beginning 2 March till possibly 8 March. Callsign will be 5A21PA. QSL via ON4APS.
- Terje JX3EX is still active from Jan Mayen. He can be heard sometimes on the 14226 DX net around 1700. QSL goes to Terje Berg, 8099 Jan Mayen Island, Norway.
- Alain F2HE will be active between 1 to 15 February from Les Saintes Island (Guadeloupe) as FG/F2HE (IOTA NE-114). QSL via F6LQJ.
- Ghaly 5T5TY can be heard after 2000 UTC around 14226 kHz.
- Helios F6IHY is now active on Kerguelen Island under the callsign FT5XN for the next six months. QSL via F6PEN via the Bureau.
- Mirek VK3DXI is on the air until August as HS0/VK3DXI on CW and SSB on 40 to 10 metres. QSL via DL4DBR.
- Chatham Island ZL7 will be activated by a group of six German amateurs between 23 February and 9 March.
- Andy G4ZVJ will be on the air from 5 February to 1 March as 9G5VU. QSL to home call.
- Eric F5JKK will be on the air from January to May, possibly as TT6M or as TT8AQ, mainly on CW. QSL via F6FNU.
- Harv KE2FB is now active from Phnom Penh as XU2FB. QSL via N4JR.

Interesting QSOs and QSL Information

- TT8JFC - 21 MHz - SSB - 1255 - Dec. QSL via WA4ZJB, Russell W Madison, 812 E Orange St, Apopka, FL-32703, USA.
- 5A2A - 28 MHz - SSB - 1025 - Dec. QSL via DL3KDV, Dieter Voss, Friedrichsthal 21, D-51688, Wipperfuerth, Germany.
- ZD7WRG - 21 MHz - SSB - 1159 - Dec. QSL via WA2JUN, Anthony L D'Ercole, 187 Long Hill Road, Oakland, NJ-07436, USA.
- XT2DP - 21 MHz - SSB - 1208 - Dec. QSL via WB2YQH, Robert E Nadolny, PO Box 73, Springbrook, NY 14140, USA.
- V51HK - 21 MHz - SSB - 1314 - Dec. QSL via DL6OBS, Karl Heinz Koehler, Deister Str 34, D-30974, Wenningsen, Germany.
- 7Q7DX - 21 MHz - SSB - 1432 - Dec. QSL via E R Espindza, Seventh Day Adventist Hospital, c/o PO Makwasa, Malawi, Africa.
- D2AI - 21 MHz - SSB - 1623 - Nov. QSL via CT1EGH, Antonio Pereira, R Guerra Junqueiro 25A, Vale de Milhacos, P-2855, Corroios, Portugal.
- 3XA8DX - 21 MHz - SSB - 1658 - Dec. QSL via DJ9ZB, Franz Langner, Benfelder Str 4, D-77955, Ettenheim, Germany.
- 7Z1IS - 21 MHz - SSB - 1259 - Dec. QSL via SM0OFG, Charly Chahine, Mellingeb 82, S-16364, Spange, Sweden.
- TU2QU - 21 MHz - SSB - 1508 - Dec. QSL to Jean Marie Scotto, Box 925, Abidjan 01, Ivory Coast, Africa.
- EY8MM - 28 MHz - SSB - 0513 - Dec. QSL to Nodir M Tursoon Zadeh, Box 303, 734001, Dushanbe, Tajikistan, Asia.
- Z21AR - 21 MHz - SSB - 1405 - Dec. QSL via Dave R Drummond, PO Box 15, West Nicholson, Zimbabwe, Africa.

From Here There and Everywhere

- Stuart VK8NSB has moved from Darwin to Alice Springs, but his postal address and QSL route is the same as before. Incidentally, Stuart had a good time DXing on 15 and 10 metres. The information about QSOs listed under the sub-section "Interesting QSOs, etc" are all Stuart's contacts.
- Mirek HS0/VK3DXI has reported that he finally received his two licences from the Thai officials, the upgraded full licence and his station licence, together with the tested and approved radio equipment. Expect him now to be on the air from Bangkok until August 1998.
- If you worked Tariq AP2TJ, his QSL manager is W3HNK.
- Eric FT5ZG closed down his station from Amsterdam Island and has gone home.
- Bill VK4UA is very unlucky - he is off the air again. A violent storm has damaged his tower and antenna system for the second time. My sympathy goes to him in his loss and I wish him, as a New Year present, 10 cubic metres of concrete for his new tower base.
- Mike VK6HD advises that he received a letter from Sergio HI8LUZ which also contained a card from a 1991 QSO. Says Sergio: *"Sorry for the delay. I have been away from HI-land (Dominican Republic) since 1992. I just found your card. I know that too many QSL cards have been lost. If you know anybody that worked my station and never received my QSL, please tell them to send me another one. I know I have worked at least nine VKs on 80 metres, but I cannot find any QSL cards. I lost my logs when I was transferred from California to Panama. I am currently HP1YHI. I am in the US Army and have callsigns from 11 different countries."* In closing Sergio gave two addresses. When he operates in the Dominican Republic he wants the mail to be sent to Sergio A Vazaquez, PO Box 866, Santo Domingo, Dominican Republic. His address in Panama is

Sergio A Vazaquez, PSC4, Box 6420, APO, FL 34004, USA.

- The *Sydney Morning Herald* carried an interesting article recently. It says that three of Australia's wildest and most remote places have been given World Heritage Listings at the meeting of the World Heritage Committee in Naples. The Heard and McDonald Islands group, 4000 km south-west of Perth, and Macquarie Island, 1500 km south-east of Hobart, have been recognised for their outstanding natural and geological values. The Federal Minister for the Environment, Senator Hill, said the Commonwealth would ensure that the Heard and McDonald Islands remained essentially untouched wilderness. Tourist visits are allowed to Macquarie Island, but only under strictly controlled conditions. If you worked Heard Island and Macquarie island in 1997, good on you! If you are waiting for the next DX activity from these DXCC countries, your wait will be a very long one, probably stretching into impossibility as far as Heard Island is concerned.
- Frank YJ8AA says his plans to visit outlying northern islands in Vanuatu are at a temporary halt.
- The QSL Manager for D2BB is now Joe W3HNK.
- Here we go again. Alan VK4AAR informs that Tom VK0ANARE has returned to Australia and has decided to handle his own QSL cards for that operation. He can be reached at: Tom Stokes C/o Simon N Trotter, PO Box 2063, Kambah Village, ACT 2902.
- I spoke to Tom VK1TS (formerly VK0TS) shortly after his return from Macquarie. Tom said that in the new group of ANARE personnel there is one amateur with a limited licence. Although his privileges will allow him to operate on 6 and 2 metres, Tom does not know whether this person intends to be active on 6 metres or not. And about those VK0TS QSL cards. Tom says they are on their way, some of them already in the post to the deserving.
- ZF2RA cards should be sent to Al K7AR, or under his previous callsign, WA2TMP.
- The new QSL manager for R1FJZ is now U3AJ, B A Ermilov, B Serunovskaya 19/37-48, 113093 Moscow, Russia.
- Naga City in the Philippines celebrates its 50th birthday with a special call 4G50N until 31 March. QSL goes via DU9RG's new address, Robin U Go, 818 Acacia Ave, Ayala Alabang Village, 1780 Muntinlupa City, Philippines.
- The call DU100 will be used during the whole of 1998 to celebrate the Philippines 100th year of Independence.
- The correct QSL address of TF3IRA is direct via the call book address: IARU, Box 1058, IS-121, Reykjavik, Iceland.
- It is now official. The new sunspot cycle (23) began in May 1996, almost two years ago.
- Portuguese amateurs are allowed to use the following special prefixes between 1 January and 30 September 1998 to celebrate EXPO 98. CT98 (used by CT1, CT2 and CT5 stations); CS98 (CT4); CQ98 (CT3); and CU98 (CU).
- Belgian radio amateurs are celebrating the 50th anniversary of their national association by using the special prefix ON50 from 1 January to 31 December. Look for ON50LZ on a variety of bands. QSL via ON7ZT.
- The correct QSL Manager for KH0S is JA1OGX.
- The special event station 8N0WOG will be on the air soon (from 7 to 22 February) in Nagano, Japan, for the Winter Olympic Games 1998. CW/SSB activity from 160 to 10 metres.
- "Zbig" VK2EKY advised that he obtained a licence from the Australian Communication Authority on 23 December which entitles him to use the callsign VK9EKY on Lord Howe island. It seems to me that the Australian authorities have abandoned the concept of the VK9 calls, where the first letter of the suffix designated the DXCC island on which the activity takes place, ie L = Lord Howe Island, N = Norfolk Island, C = Cocos-Keeling Islands, and X = Christmas Islands. Entries on page 99 and 100 of the 1998 Australian Call Book are proof of this, including the entry of our "famous" Vlad VK9XL (see June 97 and October 97 issues of *Amateur Radio*). Did Vlad renew his licence? How? Who paid for it? Did he renew it from Russia? I was told that his "American" address is not his address at all. The mystery deepens!
- "Zbig" - Frank - VK2EKY says that he will visit Lord Howe island on occasions in the future but, by the time you read this, he is probably already in Japan using the callsign 7J6AAK/2. He intends to print the VK9EKY cards in Japan, and he can be contacted for direct QSLing at: Frank Z Murdzia, Shijimizuka-3-8-41, Hamamatsu-City, Shizouka-Ken, 432 Japan. Or send your card via 7J6AAK/2 via the Japan JARL QSL bureau. QSLing to the VK9/VK0 Bureau will give you negative results and QSLing via VK2EKY will result in long delays.

This group represents approx 90% of amateurs in Nepal, which has a population of 20,000,000. The only legal callsign missing was Vlad 9N1FD. From left to right, Neil Penfold 9N1NE (VK6NE), Hari S Shrestha (no callsign), Suresh R Upreti 9N1HA, Satish K Kharel 9N1AA, Richard Wurster 9N1ARB, and Joe Fazio 9N1BFI (VK6BFI). The group was at the QTH of Dick 9N1ARB in Kathmandu. ***(Photo from Neil VK6NE)***

QSLs Received

KD7P/NH7 (8 w - op); ET3BN (6 w - DL1JRC); TT8KM (3 w - F6FNU); VP2EST (3 w - KT8Y); 5B4AGC (3 W - Box 1344, Paphos, CY 1833, Cyprus); UK8IWW (2 m - Box 10, Samarkand, 703048, Uzbekistan, Asia)

Thank You

Many thanks to all those who supplied me with news and other information. Special thanks to: VK1TS, VK2XH, VK2EFY, VK2EJM, VK2EKY, VK2KFU, VK2TJF, VK4AAR, VK5WO, VK6HD, VK6NE, VK8NSB, VK0TS, DL3NE, G3XTT, YJ8AA, and the publications, *Sydney Morning Herald*, *World Book Encyclopaedia*, *QRZ DX*, *The DX News Sheet* and *425 DX News*.

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Contests

Peter Nesbit VK3APN
Federal Contests Co-ordinator
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pnesbit@melbpc.org.au

Contest Calendar February – April 1998

Feb 7-8	YU DX Contest	
Feb 14	Asia-Pacific CW Sprint	(Jan 98)
Feb 14-15	ARRL DX CW Contest	(Jan 98)
Feb 14-15	PACC CW/SSB DX Contest	(Jan 98)
Feb 20-22	CQ 160 Metre SSB Contest	(Dec 97)
Feb 21-22	RSGB 7 MHz CW Contest	(Jan 98)
Feb 21-22	Jock White National Field Day	
Feb 21-22	REF (France) SSB DX Contest	
Feb 21-22	UBA (Belgium) CW DX Contest	
Feb 22	High Speed Club CW Contest	(Jan 98)
Mar 7-8	ARRL DX SSB Contest	(Jan 98)
Mar 8	DARC 10 m Digital Contest	
Mar 14-15	Commonwealth Contest (CW)	
Mar 21-22	WIA John Moyle Field Day	
Mar 21-22	Russian DX Contest	
Mar 21-22	DARC HF SSTV Contest	
Mar 21-22	Bermuda Contest	
Mar 28-29	CQ WPX SSB Contest	
Apr 4-5	SP DX Contest	
Apr 10-12	JA DX High Band CW	
Apr 11-12	International HF Grid Square Contest	
Apr 11-12	EA DX Contest	
Apr 18-19	SARTG AMTOR Contest	
Apr 18-19	Holyland DX Contest	
Apr 25-26	Helvetia DX Contest (Switzerland)	
Apr 25-26	SP RTTY Contest	

Contest Comments

As I write this, the Ross Hull VHF/UHF Contest is in full swing. There is some divergence of opinion regarding the re-introduction of 6 m, and I have already received some correspondence on the issue, which has been forwarded to the manager concerned (John VK3KWA).

To clear up any misconceptions, the day-to-day running of WIA contests is always handled by the relevant manager, and comments regarding our contests should ideally be directed to them in the first instance. Although entrants are always welcome to contact me regarding any aspects of contests, a more timely response is usually obtained by going directly to the manager, unless there is some irreconcilable difference (which is, fortunately, rare).

I was going to talk about weak signal work, but time and space have run out, so it will have to wait. For information this month, thanks to VK4NEF, G4BUO, OE4BKU, CQ-Contest, DARC, NZART, and SRR. Until next month, good contesting!

Peter VK3APN

Jock White National Field Day (NZART)

0300-1200z Sat 21 Feb &
1800-0300z Sun 22 Feb

This contest is open to portable ZL stations, and also to overseas stations. Both 80 and 40 m can be used, phone and CW. Cross-mode contacts are not permitted. Sections include: CW; phone; mixed mode; 80 m only; "natural" power; QRP max 5 W O/P. Exchange RS(T) plus serial number. ZLs will add their branch number.

This contest is divided into 18 one-hour periods, changing over on the hour. Stations can be contacted once per hourly period, per mode, per band. Note that two consecutive QSOs with the same station are not permitted under the following circumstances, unless five minutes have elapsed: (a) when changing modes but staying on the same band; (b) at the end of one period and the start of the next.

Score 10 points per QSO, and multiply by the total number of branches worked on phone and CW. Multipliers are counted separately on 80 and 40 m, and on phone and CW, ie the same multiplier can be counted up to four times.

The summary sheet should show all usual details, plus a summary of the QSOs and multipliers per band and mode. Send logs to: S White ZL2AHC, 19 Rossport Street, Johnsonville, Wellington, New Zealand to arrive by 27 March 1998.

DARC 10 m Digital Contest "Corona"

1100-1700z Sunday, 8 March 1998

This contest is organised by DARC to increase interest in all digital modes, and takes place on the first full weekend of March, July, September and November each year. Only 28 MHz is used, and sections include Single Operator and SWL.

Modes are RTTY (Baudot), AMTOR, PACTOR, and CLOVER. Call "CQ CORONA TEST", and exchange RST and QSO number starting with 001. Additional contacts may be made with the same stations if a different mode is used. Score one point per completed valid QSO, and multiply by the number of DXCC/WAE countries plus call-areas of JA, W, and VE.
Separate logs are requested for each mode, and should contain Date, Mode, Time UTC, Callsign, Message Sent and Received, Points and Multipliers. Send logs postmarked within four weeks to: Werner Ludwig DF5BX, PO Box D-49110, Georgsmarienhutte, Germany.

1998 Commonwealth Contest

1200z Sat to 1200z Sun, 14/15 March

The Commonwealth Contest promotes contacts between stations in the Commonwealth and Mandated Territories, and runs on the second full weekend in March each year. It is open to single operators only, and sections are: Open (no limit on operating time), and Restricted (operation limited to 12 hours; off periods must be clearly marked and at least one hour each; at least four hours operation must take place after 0000z on 15 March 1998).

Entrants should operate in the lower 30 kHz of each band, except when contacting Novice stations operating above 21030 and 28030 kHz. Exchange RST plus serial number. Any station using a Commonwealth Call Area prefix can be worked, except those within the entrant's own call area. Note that for this contest, the entire UK counts as ONE call area.

Score five points per valid QSO, plus a bonus of 20 points for each of the first three contacts with each Commonwealth Call Area, on each band.

A number of Commonwealth Society HQ stations will be active during the contest, and will send 'HQ' after their serial number to identify themselves. Every HQ station counts as an additional call area, and entrants can contact their own HQ station for points and bonuses.

Separate logs and lists of bonuses claimed are required for each band. Entries must be accompanied by a summary sheet indicating the section entered, and the scores claimed on each band. Send logs postmarked by 7 April 1998 to: RSGB HF Contests Committee, c/o S V Knowles G3UFY, 77 Bensham Manor Road, Thornton Heath, Surrey, CR7 7AF, UK.

The Senior and Junior Rose Bowls will be awarded to the leaders of the Open and Restricted sections respectively, and Certificates of Merit to the runners-up and the leading stations in each

Call Area. A Commonwealth Medal may be awarded to the entrant in either section who, in the opinion of the HF Contest Committee, has most improved his or her score, or contributed significantly to the contest over the years.

To encourage activity on as many bands as possible, a special 61st Anniversary Certificate will be awarded to every entrant who contacts more than 61 Band-Call Areas in the 1998 contest. For example; VP9 worked on three different bands counts as three Band-Call Areas. Entrants are asked to note their claimed Band-Call Area total on the Summary Sheet.

Results of the 1997 contest will appear next month.

Commonwealth Call Areas are:

3B6 3B8 3B9 3DA 4S 5B 5H 5N 5W 5X 5Z 6Y 7P 7Q 8P 8Q 8R 9G 9H 9J 9L 9M0 9M2 9M6/8 9V 9Y A2 A3 AP C2 C5 C6 C9 CY0 CY9 G/GB/GD/GI/GJ/GM/GU/GW (all one area) H4 J3 J6 J7 J8 P2 S2 S7 T2 T30 T31 T32 T33 TJ V3 (Antigua, Barbuda) V3 (Belize) V4 V5 V8 VE1 VE2 VE3 VE4 VE5 VE6 VE7 VE8 VE9 VK0 (Heard) VK0 (Macquarie) VK1 VK2 VK3 VK4 VK5 VK6 VK7 VK8 VK9C VK9L VK9M VK9N VK9W VK9X VO1 VO2 VP2E VP2M VP2V VP5 VP8 (Antarctica) VP8 (Falkland) VP8 (S. Georgia) VP8 (S. Sandwich) VP8 (S. Shetland) VP8 (S. Orkney) VP9 VQ9 VR6 VU VU4 VU7 VY1 VY2 YJ Z2 ZB2 ZC4 ZD7 ZD8 (Tristan de Cunha) ZD8 (Ascension) ZF ZK1 (N. Cook) ZK1 (S. Cook) ZK2 ZK3 ZL0 &/ZL (Reciprocal) ZL1 ZL2 ZL3 ZL4 ZL7 ZL8 ZL9 ZS1 ZS2 ZS4 ZS5 ZS6 ZS8 GB5CC (RSGB HQ) (various other HQ).

1998 Russian DX Contest

1200z Sat – 1200z Sun, 21/22 Mar

This contest is scheduled for the third full weekend of March each year. Sections include Single Operator; CW, Phone or Mixed; Single or all bands. Modes are SSB and CW, and bands are 160-10 m.

Exchange RS(T) + serial number starting with 001. Russian stations will send RS(T) + two letter "Oblast" code (max 88 + 3 on each band). Score 10 points per Russian QSO, five points for QSOs with stations on another continent, three points for stations in the same continent, and two points with your own country. Continent is as per WAC.

Multiply the total QSO points by the number of DXCC countries and Russian "Oblasts" worked on each band. Use a separate log for each band, and send logs and summary sheets postmarked within four weeks to: Contest Committee SRR", PO Box 59, 105122 Moscow, Russia.

Oblast designators are:

AB AD AL AM AO AR BA BO BR BU CB CK CN CT CU DA EA EW GA HA HK HM IR IV JA JN KA KB KC KE KG KI KJ KK KL KM KN KO KP KR KS KT KU LO LP MA MD MG MO MR MU NN NO NS NV OB OM OR PE PK PM PS RA RO SA SL ST SM SO SP SR SV TA TB TL TM TN TO TU TV UD UL UO VL VG VO VR YA.

DARC International HF SSTV Contest

1200z Sat to 1200z Sun, 21/22 Mar

This DARC contest is open to amateurs world-wide, to increase interest in SSTV. It is scheduled for the third full weekend in March each year. Bands are 80-10 m (excluding 10, 18, 24 MHz). Sections include Single Operator, and SWL. All contacts must use two-way SSTV.

Call "CQ SSTV TEST", and exchange report and QSO number starting with 001. Score one point per completed QSO, and multiply by the number of DXCC/WAE countries worked plus call-areas of JA, W, and VE. Send your log postmarked within four weeks to "Werner Ludwig DF5BX, PO Box D-49110, Georgsmarienhuette, Germany"

Bermuda WW Contest

0001z Sat to 2359z Sun, 21/22 Mar

This contest runs on the third full weekend in March, and is open to all amateurs. Actual operating time must not exceed 24 hours. Off periods must be at least two hours. Use phone and CW on 80, 40, 20, 15, 10 m only.

Exchange RS(T) only, and claim five points per QSO. The final score is the total QSO points on all bands, times the number of countries worked on each band, times the number of VP9 contacts on each band.

The top score world-wide shall receive an engraved trophy which shall be mailed to them unless they choose to collect it in person at the Annual Banquet in October. Transportation to Bermuda will be provided by the Bermuda Department of Tourism, and accommodation will be provided by the Palmetto Bay Hotel. The top score for each country shall receive a certificate, provided a minimum of 100 contacts is made, including at least three different VP9 call signs.

Logs, duplicate and summary sheets must be clearly labelled with the operator's callsign and date (including year) and, where appropriate, band and mode. Logs must be received by 1 June, at: Radio Society of Bermuda, Contest Manager, PO Box HM 275, Hamilton HM AX, Bermuda.

CQ WPX Contest

SSB: 0000z Sat to 2400z Sun, 28-29 March
CW: 0000z Sat to 2400z Sun, 30-31 May

This contest is sponsored by *CQ Magazine*, and the objective is to contact as many stations world-wide as possible on 1.8-30 MHz (except 10, 18 & 24 MHz). Categories include: single operator (either single or all band), subdivided according to power (unrestricted, low power max 100W O/P, and QRPp max 5 W O/P); and multi-operator (either single or multi-transmitter, all band only). Single operator stations are where one person performs all operating, logging, and spotting functions. Note: Single operators may operate for only 36 of the 48 hours. Off periods must be at least one hour long, and clearly marked in the log. No time limits apply to multi-operator stations.

Multi-multi stations must have all transmitters located within a 500 m diameter circle or within the property limits of the licensee's address, whichever is greater. All antennas must be physically connected by wires to the station transmitters and receivers.

Exchange RS(T) plus a three digit number starting at 001. Continue to four digits if past 1000. Multi-transmitter stations must use separate numbers for each band. Score three points (20/15/10 m) or six points (160/80/40 m) for contacts with stations on different WAC continents, and one point (20/15/20 m) or two points (160/80/40 m) for contacts with stations within the same WAC boundary. Contacts with stations in the same country are permitted for multiplier credit but have zero point value.

The multiplier is the total number of prefixes worked **on all bands** (each prefix is counted only once regardless of the number of different bands on which it is worked). A "prefix" is the unique letter/numeral combination forming either the first part of the callsign, or else the normal country identifier for stations using their home callsigns in another DXCC country. For example: N8, W8, WD8, HG1, HG19, KC2, OE2, OE25 are all separate prefixes. The prefix for both N8BJQ/KH9 and KH9/N8BJQ is KH9. KH6XXX operating from Ohio could sign /W8, /N8, /K8, or any other prefix authorised for that district. Portable designators without numbers will be assigned zero after the letter prefix, eg N8BJQ/PA becomes N8BJQ/PA0. Any calls without numbers will be assigned a zero after the first two letters, eg RAEM becomes RA0EM. Suffixes indicating maritime mobile, mobile, portable, alternate location, and licence class do not count as prefixes (eg /MM, /M, /P, /A, /E, /J). The final score is QSO points x multiplier.

Logs must show times in GMT, with breaks clearly marked. Show prefix multipliers only the first time they are worked. Logs must be checked for duplicates, correct points, and prefix multipliers. Logs must be accompanied by a sorted alphanumeric list of prefix multipliers, and a summary sheet showing call, name, address, category, power, scoring information, and a signed declaration that all contest rules and radio regulations were observed.

Disk submission of logs is encouraged. CT's *.BIN file or *.ALL file, N6TR's *.DAT file, NA's *.QDF file, or *.DBF files are preferred. An ASCII file containing all required information is also acceptable. Disk files must be in chronological order for single operator and multi-single stations, and chronological by band for multi-multi stations. Please label your disks and name your files with the call used (example: N8BJQ.BIN or N8BJQ.DAT). Disks will be required from top scoring stations if requested.

Alternatively, logs may also be submitted via e-mail to *SDB@ag9v.ampr.org* or *N8BJQ@erinet.com*. Binary files may be sent providing they are in MIME or UUENCODE format. Internet submissions will also require a summary sheet and prefix multiplier sheet. Logs received via e-mail will be confirmed via e-mail upon receipt.

Send logs no later than 8 May (SSB) or 10 July (CW) as above, or to: WPX Contest, 76 N Broadway, Hicksville, NY 11801, USA. Indicate SSB or CW on envelope.

A comprehensive range of trophies and plaques is offered, and certificates will be awarded to the highest scoring station in each category, country and VK call area. To be eligible for awards, single operator stations must show at least 12 hours operation, and multi-operator at least 24 hours operation. Single band entries showing points claimed for more than one band will be judged as multi-band unless otherwise

specified. Where returns justify, 2nd and 3rd place awards will also be made.

1998 John Moyle Contest

Presented by Eric Fittock, VK4NEF

Well, once again those who enjoy a weekend in the bush should be planning for this year's John Moyle Field Day. Although basically the same as last year, some minor changes have been made, so I suggest you read the rules carefully.

In particular, the contest is now split into eight three-hour blocks which start and finish on the hour. This will make it much easier when making repeat QSOs, as operators will no longer need to keep track of the time elapsed since working each station. Another change is to allow logs to be forwarded by e-mail, bringing this contest into line with many other contests, and making things easier for entrants.

If anyone wishes to contact me privately to discuss rules, etc, my home phone number is 07 3395 5327, and my address is as shown in the Log Submission section below. I wish all entrants good luck, and look forward to seeing you on air during the contest!

Overview

1. The aim is to encourage and provide familiarisation with portable operation, and provide training for emergency situations. The rules are therefore designed to encourage field operation.

2. The contest takes place on the third full weekend in March each year, and runs from 0100 UTC Saturday to 0059 UTC Sunday, 21-22 March 1998.

3. The contest is open to all VK, ZL and P2 stations. Other stations are welcome to participate, but can only claim points for contacts with VK, ZL and P2 stations.

4. Single operator portable entries shall consist of one choice from each of the following:

a. 24 or 6 hour;

b. Phone, CW, or Open mode;

c. HF, VHF/UHF, or All Band.

5. Multi-operator portable entries shall be Open mode, and consist of one choice from each of the following:

a. 24 or 6 hour;

b. HF, VHF/UHF or All Band.

6. Home and SWL entries may be either 24 hour or six hours, Open mode, all band.

Scoring

7. Portable HF stations shall score two points per QSO.

8. Portable stations shall score the following on 6 m:

a. 0-49 km, two points per QSO;

b. 50-99 km, 10 points per QSO;

c. 100-149 km 20 points per QSO;

d. 150-199 km 30 points per QSO;

e. 200-499 km 50 points per QSO;

f. 500 km and greater, two points per QSO.

9. Portable stations shall score the following on 144 MHz and higher:

a. 0 to 49 km, two points per QSO;

b. 50 to 99 km, 10 points per QSO;

c. 100 to 149 km, 20 points per QSO;

d. 150 km and greater, 30 points per QSO.

10. For each VHF/UHF QSO where more than two points is claimed, either the latitude and longitude of the station contacted or other satisfactory proof of distance must be supplied.

11. Home stations shall score:

a. Two points per QSO with each portable station;

b. One point per QSO with other home stations.

Log Submission

12. Logs must be accompanied by a summary sheet showing: callsign, name, mailing address, section entered, number of contacts, claimed score, location of the station during the contest, equipment used, and a signed declaration stating *"I hereby certify that this station was operated in accordance with the rules and spirit of the contest"*. For multi-operator stations, the names and callsigns of all operators must be listed.

13. Logs must be sent no later than 27 April 1998, and addressed to: John Moyle Contest Manager, 134 Apollo Rd, Bulimba, QLD 4171, Australia. An ASCII text copy on a 3.5" or 5.25" MS-DOS diskette would also be most helpful (eg for CT, the CALLSIGN.ALL file). Alternatively, for 1998 only, logs may be forwarded by e-mail to: *pnesbit@melbpc.org.au* (for the 1999 and later contests, check the rules for the e-mail address which is current at the time). Logs sent by e-mail must include a summary sheet and declaration, but the operator's name is acceptable in lieu of a signature.

Certificates and Trophy

14. Certificates will be awarded to the leading stations in each section. Additional certificates may be awarded where operation merits it. Note

Radio and Communications

Incorporating AMATEUR RADIO ACTION and CB ACTION

Published by ACP ACTION, PO Box 119, Oakleigh, Victoria 3166 (03) 9567 4200

Okay, so we don't use $20 notes like those any more, but the photo certainly shows just how tiny the remote control head for Icom's new IC-207H dual-band VHF/UHF FM transceiver is. We feature a full review of this new budget powerhouse this month. Can a really low price offset 'one band at a time' operation?

February's R&C has lots of great features aimed specifically at amateur radio operators. Check these out...

- **CONSTRUCTION: Hank, VK5JAZ tells how to build a simple dummy load. Every shack should have one!**
- **ANTENNAS: Steve, VK6VZ, adapts some VHF designs for use at HF... with really fascinating results.**
- **REVIEW: Icom IC-207H. Using one receiver and one transmitter for two bands cuts costs. Does it go?**
- **PEDESTRIAN MOBILE: Peter, VK1PK, goes ped mobile — on 10 metres using a modded CB! Here's how.**
- **SAREX FOR BEGINNERS: confused by all the satellite terms and don't know where to tune? Look here.**
- ***As usual, we have our three DX columns, mods and more... the best stories and regulars every month!***

Don't miss out — **RADIO and COMMUNICATIONS** is great reading for amateurs!

Check your local newsagent today!

(PS. We also have the biggest collection of radio-oriented Classified adverts in the country. There's lots of them because they *work* so well. Ask your newsagent to keep a copy for you each month, or ring 1800 25 2515 for subscription details. Hurry — you might *miss* something!)

that entrants in a 24 hour section are ineligible for awards in a six hour section.

15. The Australian station with the highest CW score will be awarded the President's Cup, a perpetual trophy held at the Executive Office, and will receive an individually inscribed wall plaque as permanent recognition.

Disqualification

16. General WIA contest disqualification criteria, as published in Amateur Radio from time to time, applies to entries in this contest. Logs which are illegible or excessively untidy are also liable to be disqualified.

Definitions

17. A portable station comprises field equipment operating from a power source, eg batteries, portable generator, solar power, wind power, independent of any permanent facilities.

18. All equipment comprising the portable station must be located within an 800 m diameter circle.

19. A single operator station is where one person performs all operating, logging, and spotting functions.

20. A single operator may only use a callsign of which he/she is the official holder. A single operator may not use a callsign belonging to any group, club or organisation for which he/she is a sponsor except as part of a multi-operator entry.

21. A multi-operator station is where more than one person operates, checks for duplicates, keeps the log, performs spotting, etc.

22. A multi-operator station may use only one callsign during the contest.

23. Multi-operator stations may only use one transmitter on a given band at any one time, regardless of the mode in use.

24. Multi-operator stations must use a separate log for each band.

25. A station operated by a club, group, or organisation will be considered to be multi-operator by default.

26. None of the portable field equipment may be erected on the site earlier than 28 hours before the beginning of the contest.

27. Single operator stations may receive moderate assistance prior to and during the contest, except for operating, logging and spotting. The practice of clubs or groups providing massive logistic support to a single operator is, however, totally against the spirit of the contest. Offenders will be disqualified and, at the discretion of the manager, may be banned from further participation in the contest for a period of up to three years.

28. Phone includes SSB, AM and FM.

29. CW includes CW, RTTY, and packet.

30. It is not expected that any other modes will be used in the contest, but if they are, they shall be classed as CW.

31. All amateur bands may be used except 10, 18 and 24 MHz. VHF/UHF means all amateur bands above 30 MHz. Note: On 6 m, the region below 50.150 MHz has been declared a contest-free zone, and contest CQs and exchanges may only take place above this frequency. Stations violating this rule will be disqualified.

32. Cross-band, cross-mode and contacts made via repeaters are not permitted for contest credit. However, repeaters may be used to arrange a contact on another frequency, providing a repeater is not used for the actual contact.

33. (Note revised rule). Stations may make repeat contacts, and claim full points for each one. For this purpose, the contest is divided into eight consecutive three-hour blocks: 01-04, 04-07, 07-10, 10-13, 13-16, 16-19, 19-22, 22-01 UTC. Repeat contacts can be made anywhere in these three hour blocks, providing they are not consecutive or are separated by at least five minutes.

34. Stations must exchange ciphers comprising RS(T) plus a three digit number commencing at 001 and incrementing by one for each contact.

36. Portable stations must indicate that they are portable when sending their callsigns, and to avoid confusion with home stations operating in another state, must follow their cipher with the letter "P", eg 59001P.

37. Multi-operator stations should keep a separate log for each band, and commence each band with 001.

38. Receiving stations must record the ciphers sent by both stations being logged. QSO points will be on the same basis as for Home Stations, unless the receiving station is portable.

39. For six-hour stations, the practice of commencing operation and later selecting the most profitable operational period within the allocated contest times is not in the spirit of the contest, and shall result in disqualification. The period of operation must commence with the first contact on any band or mode, and finish six hours later.

ar

International Amateur Radio Union Monitoring Service (IARUMS) – Intruder Watch

Gordon Loveday VK4KAL
Federal Intruder Watch Co-Ordinator
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VK4KAL@VK4UN-1
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I hope one of your New Year resolutions is to increase your surveillance of the amateur bands for those ever-present intruders.

The ACA at Quoin Ridge have supplied me with some interesting observations regarding locations of some long standing intruders. However, I would like amateurs to keep an ear open on the following frequencies:

1. 7.036 MHz, a six channel data transmission, location 39 degrees 31 minutes North, 116 degrees 36 minutes East near the Chinese city of Jianjin, bearing 347 degrees from Darwin and 333 degrees from Brisbane - heard at 1152 UTC on 27 December 1997.

2. 7.085 MHz, UiBC station using A3E (AM), located by cross bearings from Brisbane (271 degrees) and Darwin (285 degrees) placing it in the Sudan at or near Omdurman (Latitude 17 degrees 31 minutes, Longitude 27 degrees 55 minutes).

3. 7.105 MHz, UiJAM (jammer) using F3, spreading from 7.095 to 7.115 MHz, bearing 332 degrees from Brisbane and 348 degrees from Darwin indicating it is near the mouth of the Yellow River in China - heard at 1209 UTC on 28 December 1998.

I would urge all amateurs to do some serious listening to 40 metres as this band is by far the most interfered with by illegitimate transmissions of all types. Information such as place names and call signs may be hard to catch if the language is foreign, but be patient at all times!

I would also advise a relaxation of logging R7B and B9W modes and beacon signals, along with Russian Naval Station signals. There is very little chance at present of removing those long standing pests RDL and UMS! Time could be spent more profitably on other frequencies.

I have not taken leave of my senses, but 40 metres is one of the more popular operating frequencies as well as being one of the smallest in primary service, only 7.000 to 7.100 MHz. The other bands will be looked at in turn.

ar

Power Line Noise

Conditions of late have picked up, especially from 0700 UTC onwards. However, signals have been noticeably absent around our local lunchtime. Sometimes Asian and African signals propagate into south-eastern Australia from the north. Yet all we seem to be hearing is plenty of noise, particularly from power lines. The long hot dry summer has certainly made the power noise increase significantly. Well known Melbourne DXer, Bob Padula, wrote in edition 73 of the *Electronics DX Press (EDXP)* wondering if it indeed is part of the "El Nino" phenomenon.

He comments: *"One effect of this very long dry spell is the horrendous build-up of RF Radiation from the national power grid. Melbourne is serviced from the main power station at Yallourn, some 150 km to the east, via 600,000 volt transmission lines. This is then converted into 6,600 volt feeders to service the suburban area, which in turn is transformed down into the usual 415 volt three-phase system, then distributed into our residences in single-phase 240 volt AC. The 6,600/240 volt transformers are usually pole-mounted.*

"RF radiation from the whole grid is terrible – the local power company refers to their transmission lines as 'antennas' and they certainly do a very good job of radiating very high levels of line noise, particularly the 600,000 volt and 6,600 volt networks. In times of low rainfall, build-up of dust and dirt on all elements of the grid contributes to excessive leakage and harmonic radiation (derived from the fundamental 50 Hertz)."

This is depressingly similar to many hams and SWLs world-wide. I also get power line noise here when the lines get very dry, but it is particularly noticeable when it is windy. A faulty insulator or two can really cause havoc. Fortunately, when night comes and the evening dew sets in, it does quieten down somewhat.

Here in Tasmania, a political controversy has surfaced around proposals to privatise the electricity grid as they have done in Victoria. The Labour opposition has brought up horror stories of what has allegedly happened since the SEC was abolished and the grid broken up. Is the increase in power line noise attributable to the privatisation and reduction in the maintenance staff? Bob Padula maintains that line noise has significantly increased of late in Victoria.

He has also tried to get away from power line noise by going to remote locations, yet it is still present. He also says that RF noise from the street power lines is being re-radiated from all metal objects close to the house. Noise and hash is being radiated quite a distance away from the nearest line.

Spotlight on SWLing

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VK7RH@VK7BBS#LTN.TAS.AUS.OC

Fortunately, I haven't had noise problems as bad as some have been having in Melbourne. It has been fairly dry and a good drop of rain can clean up the lines for a while. I do remember being down at a holiday home at Weymouth a number of year back and there was always a perpetual hash caused by salt spray and dust being present on the insulators. A rain shower would reduce it for a short while. The power lines were also very close to the house. Yet when the supply failed, tuning around on a battery portable was very different.

Moscow Cuts Back Short-wave

The Voice of Russia World Service dramatically reduced its English output, from 24 to 16 hours, as from 1 January. Budget cutbacks have forced this scaling back of Moscow's World Service.

All target areas have been affected, with Australasia having one hour cut from their service. There is no English programming between 1000 and 1400, as well as 2200 till 0200. Other European language sections also have been reduced, but not as dramatically as English. This is indeed a far cry from when it was so easy to find Moscow on a multitude of frequencies. Now it is difficult finding them at all.

Another Language Goes

The BBC external services axed Finnish on 31 December 1997, after 57 years of broadcasting in that Scandinavian language.

In the final year of Finnish language broadcasting, an agreement was reached whereby local relays were provided in the Helsinki metropolitan region, but it is the Foreign Office, and not the BBC, which determines what language is broadcast.

End Of An Era?

There was quite a deal of publicity around New Year's Day about the disappearance of CW from the maritime radio service, in both the print and electronic media. The publicity revolved around the end of CW on 500 kHz, particularly in Britain. This frequency was the main calling and emergency channel from the earliest days of radio until now. However, despite the closure of the English coastal MF stations after 90 years, and the phasing out of SOS, guess what happened? Yes, a CW emergency beacon was activated in the rough seas off the UK!

MF and CW, in particular, have been replaced with satellite technology and GMDSS. However, some old hands are maintaining that it is too dangerous relying solely on satellites as they can break down or become overloaded with traffic. Late last year, the Americans apparently perfected a system to destroy satellites from the ground using laser beams.

However, CW has not disappeared completely as there are still plenty of stations on HF. An American corporation has been buying up some of the old stations or leasing them as part of a world-wide communications system. Globe Wireless in California has about a dozen stations as part of their world-wide chain, including VIP Perth Radio.

Packet Address

You will have noticed that I have included this once more since recently reconnecting my modem after some problems with my computer. My address is *VK7RH@VK7BBS#LTN.TAS.AUS.OC*.

Well, that is all for this month. Keep up listening despite all the hassles of AC line noise and other nasties caused by other man-made electronic devices. There is still plenty to hear. **ar**

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

R J (Raymond John)	BATY	VK2BT
A E (Albert Edward)	WILLIAMS	VK5BO
J R	WALTER	VK6RG

ar

FTAC Notes

John Martin VK3KWA
Chairman,
Federal Technical Advisory Committee
PO Box 2175
Caulfield Junction, VIC 3161

Ten Metre Activity

Recently I spent a few hours, spread over a couple of days, tuning through the 10 metre band. I heard several IBP beacons on 28.200 and Australian beacons between 28.260 and 28.270 MHz. Further up the band, I logged 13 SSB stations up to 29 MHz. Above 29 MHz, I heard several FM simplex stations and some activity on two repeaters.

Against this, I recorded the number of different frequencies where I heard pirates. The total was 26 frequencies below 29 MHz (mostly AM), and five frequencies above 29 MHz (mostly SSB). Most of the pirates were speaking Indonesian, but I heard some who were obviously Australians. Most pirate activity was below 28.4 MHz, but there were some very busy frequencies between 28.6 and 28.7 MHz.

Now that the band is opening, we should be using it as much as possible - especially the part below 29 MHz, which is where most of the pirates are. We may not be able to do much about the Indonesians, but at least we can discourage Australian pirates from filling the band in the same way.

Call Book Beacon Lists

I received some information on New Zealand beacons just after the Call Book went to press.

The Mt Climie beacon ZL2MHF, on 28.230 and 52.510 MHz, is QRT after many years of service.

Delete ZL3MHF: it has been replaced by ZL3SIX on 50.040 MHz.

Several 2 metre beacons have moved to new frequencies - they are ZL1VHF 144.240; ZL1VHW 144.256; ZL2UHF 144.275; and ZL3VHF 144.285 MHz.

There is also a new beacon in Manawatu on 144.271 MHz: no details of callsign but I assume it is ZL2VHM.

There are also some changes on 70 cm and 23 cm: ZL1UHF 432.240 and 1296.240; ZL1VHW 432.256; ZL2VHT 1296.267; ZL2UHF 432.275 and 1296.275; and ZL3UHF 432.285.

There are also two changes to the Australian beacon list:

Add VK6REP at Esperance (OF66) on 144.568 MHz, power 15 W, mode FSK, antenna an east-west dipole.

Delete VK3RAI on 432.450 MHz: it is QRT and will be moved to a new site in eastern Victoria.

Six Metre Calling Frequencies

The other day I heard an amateur calling CQ on 50.110 MHz. A voice appeared and told him to get off the international DX calling frequency. No callsign, no please or thank you: definitely not the way to encourage co-operation.

The 50.200 MHz domestic calling frequency was adopted very recently and many amateurs may not be aware of it yet. Operating habits do not change overnight, and the best way to speed up the process is to be reasonably diplomatic about it.

UHF Link Frequencies

Two suggestions have been made for minor changes to the 70 cm and 23 cm band plans, to make better provision for links using wide offsets or wide bandwidths.

High speed data links may need a channel spacing of around 100 kHz, and there can be problems in finding suitable frequencies if the link segments are dotted right through with links on 25 kHz channel spacing. One solution is to reserve part of the link segments - say 422 - 423 and 442 - 443 MHz - for links with 100 kHz channel spacing.

On the 23 cm band, there are four link segments, each 1 MHz wide: 1240/1259 MHz and 1272/1292 MHz. One possibility would be to use the lower 500 kHz of each of these segments for 25 kHz spaced links, and use the upper half for 100 kHz channelling - for example, 1240.6, 1240.7, 1240.8 and 1240.9 MHz.

Some 1200 MHz link equipment is designed for wider offsets than the 19 or 20 MHz split between our link segments. In this case there should be no problem in going to wider offset by using 1240/1272 MHz (for a 32 MHz split), 1259/1292 MHz (33 MHz split), or 1240/1292 MHz (52 MHz split).

Any comments? If there are no objections, these suggestions can be incorporated in the band plans. **ar**

WIA News

Radio Amateur Co-founder of Sony SK

Masura Ibuka, the co-founder of the world-renowned Sony Corporation, died in Tokyo on 19 December 1997, aged 89. Born 11 April 1908, Ibuka was responsible for introducing the then-new transistor technology to Japan, from America, in 1952.

As a young man, Ibuka was an enthusiastic radio amateur, which led him to study electrical engineering at the Waseda University, where he graduated in 1933.

Ibuka and Akio Morita founded a company in 1946, which was later to become Sony, to make magnetic audio tape recorders. In 1952, Ibuka visited the US and saw the potential of the transistors being marketed by Western Electric. In the US at the time, applications for transistors were principally seen as being for military equipment and hearing aids.

At Ibuka's suggestion, Morita invested $US25,000 for the rights to make transistors in Japan.

Ibuka and a team of engineers at the fledgling company set about refining the manufacturing process for transistors over the next few years. They had their eye on the market for portable, battery-powered consumer products. They launched their first transistor radio in 1955 under the Sony brand. In 1957, Sony topped this with a 'pocket-sized' radio – although Sony had to issue their salesman with shirts having extra-large pockets in which to slip their demo models.

The rest is history. Sony is also famous for introducing a new word to the English language – 'Walkman', for the now ubiquitous pocket-sized audio cassette player.

Ibuka's technical leadership saw Sony launch the world's first transistor TV set in 1959 and the first solid-state videotape recorder in 1961. Under Ibuka's and Morita's leadership, Sony has been credited with transforming Japan's electronics industry from suppliers of low-cost and reliable derivatives of Western products, to makers of distinctive consumer goods – typified by the Walkman.

Ibuka became chairman of Sony in 1971, retiring in 1976. He set up the Sony Fund for Education to promote science in Japanese schools and in 1978 was admitted to the Order of the Sacred Treasure, First Class. In 1989 the Ministry of Education designated him a Person of Cultural Merits and in 1992, the Japanese Emperor made him a member of the Order of Culture. ***[Released 13/1/98]***

National co-ordinator
Graham Ratcliff VK5AGR
E-mail: vk5agr@amsat.org
AMSAT Australia net:
Control station VK5AGR
Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.
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AMSAT

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40th Anniversary Sputnik Replica Goes Silent

Reports from around the world appear to confirm that the Sputnik PS2 mini-satellite has stopped transmitting. The last time I received the signal was on 29 December 1997. I believe it went silent a day or so later. It outlived its namesake predecessor and its own planned lifetime by several weeks. If you received the signal and you are interested in sending reception reports, the address is: QSL Information for Sputnik-40, Sergey Samburov (RV3DR), PO Box 73, Korolev-10 City, 141070, Russia.

Can You Hear the EARTHWATCH Satellite?

Amateur radio satellite enthusiasts, particularly those in the Southern Hemisphere, have been asked to help find a lost satellite. The EARTHWATCH Spacecraft was launched from Russia just before Christmas and apparently stopped transmitting sometime on Christmas day.

Rex Richardson of Orbital Sciences Corporation has asked for our help. Orbital Sciences will conduct the thermal vacuum testing for Phase 3D, so we owe it to them to try to help them if we can. The EARTHWATCH spacecraft parameters are: Frequency – 401.5 MHz; Modulation FSK @ 192000 BPS.

At the time of writing, Keplerian elements for EARTHWATCH are being included in the current NASA sets issued for radio amateur use. Rex would like as many amateurs as possible to listen for a signal on that frequency that may be coming from EARTHWATCH. A typical 70 cm long CP Yagi, as used by most satellite stations, should be sufficient. When last heard, EARTHWATCH was sending short bursts of high speed data. If you hear anything of this lost satellite, please communicate with Rex at his e-mail address, *rexrichardson@oscsystems.com* or via AMSAT-NA.

AO-16 "S" Band On Then Off Again

Jim White WD0E informs us that the AO-16 "S" band transmitter has been turned off. It was turned on for testing and the tests confirmed that AO-16 does not have the power budget to keep it on and keep the 70 cm transmitter at a power level that supports entry level ground station operations.

The 437.05 MHz transmitter has to be run at about 0.5 W to allow the "S" band transmitter to remain on. Any higher than that and the software will turn it off to maintain a safe battery voltage.

Many people will be interested in weak signal sources at this time for testing their "S" band gear in preparation for Phase 3D, and it would have been advantageous to have an extra one. There are still two reliable sources available. DOVE, DO-17 has an "S" band transmitter on 2401.220 MHz and the UO-11 "S" band beacon operates on 2401.500 MHz.

Adventures in Antarctica

There has been quite a flurry of activity on the frozen continent recently with, amongst other things, an unaided walk to the South Pole and a sustained period of amateur activity on the amateur radio satellites.

Andre VK5AAP has been working at the American South Pole Station. Ron KE6JAB has been documenting his adventures on UO-22 with stories and photos. The photos are in JPEG format and are of very good quality. Those who do not have access to UO-22 or KO-25, but are on the Internet, can catch up with his activities on *http://www.thistle.org*. Material is being updated as it is downloaded from UO-22 by Roy W0SL.

Because of his latitude, Ron is restricted to operation via UO-22, although he has been trying KO-25 but has been finding uploads difficult. KO-23 is out of the question due to its inclination. Roy W0SL reports that Ron is using an IC-821, a small storage battery which he recharges with solar cells, a laptop PC running WiSP16, and two eggbeater antennas mounted on six-foot poles stuck in the snow about 20 feet apart. Just shows what can be done from a remote, QRM free, quiet location. One of the photos I downloaded from UO-22 showed Ron's tent with the eggbeater antennas standing outside.

MIR News

MIREX president, Dr Dave Larsen N6CO, reports that the previously announced MIR cross-band frequency experiment has been abandoned for now because of problems with the amateur radio antenna on MIR. The cross-band test was to have started on 1 December 97 and lasted three months. It was to have involved a 70 cm uplink to MIR along with a 2 metre downlink.

US astronaut Dave Wolf KC5VPF has been on 145.985 MHz FM simplex from MIR, but only sporadically. A space walk at the end of December was scheduled to check, and if necessary repair, the 2 m/70 cm antenna that might have been damaged during a space walk in November. That system may well be on the air again as you read this column.

The Kenwood TM-733 aboard MIR has been connected to the spacecraft's SAFEX repeater antenna. Miles Mann WF1F reports that MIR's 2 m amateur radio station was temporarily moved from the core module and installed in the Priroda module. This move was performed to take advantage of the backup tri-band antenna shared with the SAFEX II 70 cm FM repeater installed on MIR.

Although a new packet radio TNC was installed on MIR several weeks ago, not all the TNC parameters have been properly configured. MIREX has asked that ground stations monitoring the MIR Personal Message System (PMS) please be patient while the necessary adjustments are made.

About FO-20 and Other Sun-Synchronous Satellites

Like many LEOs, FO-20 is in a "sun synchronous" orbit. The precession in the RAAN of its orbit, due to the earth's oblateness, matches the earth's rotation around the sun so that FO-20 always has about 33 minutes of eclipse time each orbit and the rest in sunshine.

A sun synchronous orbit is a retrograde LEO polar orbit with an inclination of about 98 degrees. At this inclination, RAAN precession = 360 degrees in 365 days. The stability in temperature and solar energy is, needless to say, very helpful.

The ratio of eclipse to sunlight can be adjusted by varying initial orbital elements. FO-29, for example, is virtually always in sunlight, UO-11 has about 22 minutes of eclipse, and most seem to run about 33 minutes eclipse per orbit. This also means that FO-20 (and other sun synchronous satellites) appear at your location at about the same "sun time" every day.

At my QTH, FO-20 goes over about 1.30 pm and 3.30 pm every day. UO-11, AO-16, DO-17, WO-18, LO-19, UO-22, KO-25, AO-27 and FO-29, etc are also in sun synchronous orbits. KO-23, RS-12/13 and RS-15, although in highly inclined orbits, are not sun synchronous. Thanks to Stacey Mills, W4SM, and Kazu Sakamoto, JJ1WTK, for this report via ANS. **ar**

Repeater Link

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Changing Times

Physical repeater site access is changing in the West. Some of our repeater and digipeater sites no longer have easy access. Towers we constructed are being denied to us, unless we meet a range of conditions. No longer can we drive to a site that amateurs built and climb the tower. Legal problems have emerged that are a serious impediment to maintenance and future development.

In VK6, the WIA holds an insurance policy that provides cover to WIA members working on WIA matters, and this insurance policy also covers affiliated clubs like the Repeater Group. The point of this insurance policy is that it provides cover for amateurs working on amateur community projects such as constructing a tower and maintaining amateur sites like beacons, repeaters, etc. This policy may also cover non-amateurs who may be at the site during construction and maintenance (there is some doubt about this and answers are being sought currently).

It would be reasonable to think that, with this rather large insurance policy, people or organisations that own the land, building or tower that amateurs are working on, should not be concerned; all is insured. However, this is not as simple as it seems. At many sites there are 'work safe' requirements.

One of our repeater sites, built over 15 years ago, is on a hill owned by a quarry company. Access to the site is either a long one kilometre climb on foot or car access via the quarry. The car access is easier, but recent enquiries to the quarry owners have produced concern at our access to the quarry on safety grounds. Not unreasonable and, as a result, those amateurs requiring access via the quarry have to undergo a one hour quarry safety course.

Simple enough but, in the course of contact with the quarry manager, questions about who we are and what safety qualifications we hold for working on our tower and repeater site in general have been raised. Our contact with the quarry managers has been infrequent; managers change and the new managers don't necessarily know who we are. The end result of this is access to sites which amateurs have built is under threat.

Climbing

The most obvious concern with this type of amateur activity is tower climbing. If you fall off a tower you are most likely going to be seriously injured or killed. It is easy to see that work safe practices apply very readily to this type of activity.

In my work situation I climb towers often for my employer, the ABC. However, if it is required that I climb a Telstra tower, which I do from time to time, Telstra require a minimum qualification of a C class Structure Access Permit. To obtain this I did a four day course with Telstra covering ropes, climbing safety, climbing techniques, rescue techniques, and RF safety. The course was a mixture of class room and practical climbing. The course was not difficult, provided you have no problems with height, and overall was very good, except for the RF safety part which was a mixture of good stories (most of which were untrue) and misinformation.

I would be interested to hear from other amateurs who construct or maintain repeater and beacon sites. What is your experience with safety issues, etc?

CTCSS Access Only

CTCSS is much in the amateur news in VK6 of late, as one of our repeaters, VK6RTH on 146.800, now requires 123 Hz CTCSS access. This came about to help solve an interference or mute problem with this repeater.

For extended periods of time the mute would open and the repeater time out. Winding the mute further back did not fix the problem. Difficult access to this site restricted the number of visits, so a replacement repeater was constructed, and the new repeater had the facility to be switched between normal mute access and CTCSS access. If the new repeater did not have the mute problem, then the fault was the original repeater's mute, and if the fault condition continued, then the problem was external to the repeater.

The replacement allowed for a trial of CTCSS access, to find out in a practical situation what amateurs' response is to CTCSS access. How many had CTCSS and how many would be prepared to modify those rigs that did not have CTCSS?

The results are not in yet but there have been those for and against. What it amounts to is, can the majority of amateurs, who do not have CTCSS encode fitted to older equipment, solve the problem? It is, at times, a complex problem as some radios, particularly hand-helds, are of an age such that commercial encoders are difficult or impossible to buy. Fitting a home brew encoder implies making it small enough to fit. More on the outcome of this trial in due course.

Almost Another CTCSS Encoder

With CTCSS being the topic in VK6 of late, my next technical article was to have been another CTCSS encoder. This circuit uses the MM5369 60 Hz clock chip. This IC uses the NTSC colour burst crystal of 3.5 MHz and divides it down to a 60 Hz square wave, all in an eight pin IC.

The interesting aspect of this chip is that it will divide any crystal, up to about 10 MHz, by 59,659.083. By choosing the right crystal, any CTCSS tone up to about 170 Hz can be produced and there is no need to adjust the CTCSS frequency.

There are many cheap crystals available over the counter from electronic part suppliers. Several of these crystals divide down to be close enough for several CTCSS frequencies. The resulting square wave is then passed through a filter to produce a sine wave. All very simple, and it can be made small enough to fit into most radios.

Trying to buy the MM5369 proved to be difficult. Once this chip could be bought at most electronic suppliers for a couple of dollars. Eventually I found the reason for the lack of supply; the chip is no longer made! So ended this project, but if you know of a similar chip that is eight pin, please let me know.

There are many ICs that can do the job, but they are far too complex and large compared to the now dead MM5369. By the way, there was a 50 Hz version of the MM5369 and this offered more chances of the resulting divided-down frequency being a CTCSS tone. I imagine this IC is also no longer made.

FM828 E-Band on 29 MHz

A couple of years ago I made mention of the possibility of converting the Philips FM828 E band to 29 MHz. There are many of these radios around and they can be converted to 6 metres. *Repeater Link* ran several articles on conversion to 6 metres. The question remained, however, can they be converted to 29 MHz? At present, the answer is that the receiver can, but I don't know about the transmitter.

Enough time was found to have a go at converting the E-Band to 29 MHz. After a lot of experimentation this is how I converted the E-Band to 29 MHz.

Local Oscillator

The local crystal oscillator is doubled and injection is on the high side in the E-band. For 29 MHz the doubler is used but not as a doubler, as the crystal frequency is 29 MHz + 10.7 (or 10.8 if you have the 10.8 MHz IF version). If 29.000 MHz is the receive frequency, then the crystal required is 39.700 MHz. The doubler circuit, which now becomes a straight amplifier, will not tune down to 39.700 MHz, but the addition of another slug in each of the tuned circuits will bring the tuning frequency down to what is required.

Wind the existing slug all the way in and then wind the second slug in until it meets the original slug. Next adjust the trimmer capacitors across the two tuned circuits for maximum injection at Test Point One. The multimeter needs to go between TP1 and pin 9, which is the 10 volt supply, and tune for a maximum. The slugs required can be taken from unused crystal oscillator channels.

The level of oscillator injection did not appear to be too high due to the original doubler now being used as a straight amplifier.

Front End

The four front end tuned circuits are about 10 turns of enamel wire close wound on to a solid plastic former. You have to remove these plastic formers and replace them with ferrite cores. The wire is thick enough to support itself.

I was able to remove these plastic formers without unsoldering the coils. However, it was not easy as there is a small amount of glue on all of the coils anchoring them to the plastic formers. As it turned out, I had to unsolder and remove the first two coils anyway, as both these coils are tapped at one turn which has to be modified to be two turns from the bottom.

My first attempt with the front end was to remove the plastic formers, insert the ferrite cores and tune the front end. The result was a receiver sensitivity of about a microvolt; fair, but not good enough. Changing the first two coils tapping point from one turn to two turns resulted in the sensitivity improving to what was expected, 0.3 microvolt for 20 dB quieting.

The Ferrites

You need as much ferrite inside the coils as possible. I used six-hole bead ferrites, the type used for RF suppression and available from most electronic stores. Mine came from Dick Smith, Cat Number R-5430. These ferrites fit neatly inside the coils. To hold them in place add a dob of Silastic to each.

Extra C

Even with the ferrites in each of the four front end tuned circuits, the front end does quite not make it to 29 MHz. Add about 10 pF to each coil to ground. There is already a small capacitor across the tuning capacitors – leave that as is. The reason for adding the 10 pF will depend on just how tight you are able to maintain the coils after removing the plastic formers, etc. If the tuning capacitor is right out or right in when tuning the front end, change the 10 pF up or down depending on the situation.

Next Step

The next step is to have a go at modifying the transmitter. I don't think this will be easy, and it may turn out to be impossible. At the very least you have a 29 MHz FM receiver.

Having thought about the transmitter a fair bit, I have decided to replace the entire exciter with a 29 MHz crystal oscillator. The output of this oscillator will then be fed through a buffer-amp to the PA. I hope it will be possible to FM the crystal enough to achieve the required deviation.

This approach minimises the number of problems. The most important problem to solve is the PA. Is it possible to modify it down from 80 MHz to 29 MHz? I will let you know. **ar**

"Club Corner" – Coral Coast Amateur Radio Group

(published on pages 27/30 of Amateur Radio, November 1997)

If at first you don't succeed, try, try, try again!

At the foot of the above news item, we published the callsign of Les Daniels as VK2AKZ. We attempted to correct this in the *Update* column on page 44 of December *Amateur Radio*, but we got it wrong again!

Please note, that the correct callsign for Les Daniels is **VK2AXZ**. (We got it right this time, Les!)

It might be a good idea to correct both your November and December copies of *Amateur Radio* now.

The Clemens Match

(published on pages 14-16 of the January 1998 issue of Amateur Radio)

Phil Zeid VK6PZ, the author of this article, has advised of the following error and three points of clarification:

On page 15, under the sub-heading **The Metal Matching Tube**, "boom" in line three of the second paragraph should read "radiator".

On page 14, second column, second paragraph, end of second line should read "A metal tube is preferred . . ."

On page 14, under the sub-heading **Construction**, the last sentence of the first paragraph should read "Don suggested the insulating system . . ."

Figure 4, as described in the text, should show the right hand clamp with the screw facing inwards.

It might be a good idea to correct your copy of the January 1998 issue of *Amateur Radio* now. **ar**

VHF/UHF A Expanding World

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New Beacon

144.568 VK6REP Esperance PF06

It Was Going To Happen!

An e-mail to me from **Steve VK3OT/KL7** reads: *"Deja vu! Don't want to be a smart Alec about ZL to W QSOs, but I told you so! Same as in January 1989 and, in my humble opinion, we are in the same place of rise in Cycle 23 as we were in Cycle 22 after the large JA opening in October 1988, which equated to the large JA opening in November 1997.*

"So which of the EU boys wants to continue to assert that because no 46 MHz TV is being heard that there is no VK/EU path? When VK1RX reported Italian TV on 24/11/97 no one took him seriously. Same as no one took OH1VR and me seriously in 1988.

"As I said, who wants to be the brave one to predict where we are? Lynn KL7IKV, handed me the solar map the day I arrived in Alaska and we had a huge auroral display, down to the ground in Steve Tolley's words, so the first thing I did was e-mail Mike ZL3TIC to be on standby, which he was and worked all the W5s and W7CI. By the way, the W6KV was Jimmy W6JKV. Well done and a Happy New Year present – well worth it."

USA on six metres – all on 1/1/1998:

0010	ZL3TIC	Samoa	55.2499	5x5
0118	VK2BA	K5IUA	50.1099	5x5
0040	ZL3TIC	FO5DR/b	50.0500	
0044	ZL3TIC	W5WUB	50.1063	first F2 opening ZL to Stateside
0047	ZL3TIC	W5IUA	50.1063	5x1
0048	ZL3TIC	W5VY	50.1063	5x5
0049	ZL3TIC	W7CI	50.1063	5x5
0056	ZL3TIC	W5EU	50.1063	5x5
0057	ZL3TIC	W6JKV	50.1063	5x5
0109	ZL4KB	W5VY	50.1103	
0109		W4DUP	50.1250	calling CQ Pacific
0109		W7CI	50.1250	calling CQ Pacific
0127	WW2R	VK8RAS/b	50.0465	P G 6 6 heard
?	ZL2TPY	N5BBO	50.1150	

Also heard a W2 and XE! Unbelievable! ... ZL3TIC.

I am a bit lost for words, where were all the VKs? ... VK3OT/KL7

Six Metres

Geoff VK3AMK said it had been an interesting time on six metres with a combination of remarkably constant Es and, no doubt as a consequence of that, very regular JA openings, but no JA8s.

On 18/11 Geoff worked JA1, 2, 3, 4, 0; 21/11 JA1, 4, 7; 22/11 YJ8UU; 23/11 V73AT; 24/11 JA1, 3, 4, 5, 6, 7, 9; 25/11 JA1; 27/11 JA1, 2, 3, 4; 1/12 JA1, 2, 4; 2/12 JA1; 6/12 YJ8UU.

Geoff comments: *"This series of openings seems all the more remarkable having just come off an almost totally dead period on HF. About two months ago it was difficult to work DX even on 20 metres. During November, 20, 15 and 10 metres have picked up to produce better conditions than we have experienced in probably the last five years. A most amazing recovery indeed."*

25/11: 0122 VK3BWT 5x9; 0335 JH1WHS 5x9; 0337 JA1RJU 5x9; 0340 JE2DWZ 4x5.

25/11: From 0335 to 0617 a huge JA pile-up in Districts 1, 2, 4, 5, 6 and 0 worked collectively by ZL2TPY, ZL3ADT, ZL3AUU, ZL3TIC, ZL3TY, ZL3NW, ZL4TBN, VK3AMK, VK3BW, VK3OT, VK4FNQ, VK4GPS, VK5BC and V73AT.

2/12: 0348 VK4APG to JR2NET 50.180; 0345 VK2HO to JA1RJU 50.120; 0342 VK4GPS to JL4GTO 50.110; 0340 VK4GPS to JA1RJU 50.140; 0327 VK2QF to JA1RJU 50.110.

4/12: 14,000 TV transmitters. Whilst searching for 48 MHz TV transmitters, we found a site showing that Russia, etc has over 14,000 TV transmitters! It is not known how many are low band ones ... the search goes on! ... *Six News*.

Milan OK1XH advises: *"Confirmation has now been received that Moscow TV is re-transmitted throughout the 11 time zones, some of which carry exactly the same offset frequency. I am still trying to find out more regarding Russian frequency/QTHs on Band I from the EBU. For whatever reason, they use the same offset all over Europe; I do not think there is any difference at all in former USSR. Thus, it is not possible to identify the transmitter location."*

6/12: From ZL3TIC: 0556 3D2CM 5x9 50.130; 0725 V73AT 5x5 50.110. 7/12: 0331 V73AT to AH8A 50.110 5x5; 0322 V73AT to ZL2WNB 50.110 5x1.

7/12: 2314 YJ8UU into Melbourne and again at 0102. Worked by many VK3s. QSL is via ZL2HE. Stuart is aware of 28.885 MHz and will endeavour to operate there. ... VK3OT

8/12:
0100 49.750 5x5.
0300 46.170-240 5x9, also 57.240-250-260 5x9, 69.750 audio 5x9.
0500 MUF now up to 90 MHz – 86.200 and 86.250 5x9.
0545 49.750 +/- in up to 5x9 with QSB.
0700 FM Broadcast band open, stations heard 100.2-100.6-101.3-102.5-103.6-105.100-105.5-105.7-106.7-107.7 all 5x9.
0730 148.183 +/- pagers in for 10 minutes, nothing worked on two metres.
0900 148.183 +/- in again for five minutes.
Six metres open all day to VK1, 2, 3, 4, 5, 7, strong signals. ... ZL3TIC.

8/12: ZL4TBN worked: 2148 (7/12) VK4PU, between 0058 and 1020: VK2BHO, VK2ZVF, VK2DN, VK2FV, VK2BA, VK3DUT, VK3ANP, VK3BWT, VK5ZBK, VK5KL, VK5ZLX, VK5ZGC, VK5PO and VK7WX. At 0755 Australian pagers on 148.183, but could not raise anyone on 144.100.

9/12:
0300 49.750 +/- up to 5x7;
0400 short hop Es to the North Island, 45.240-250-260, 55.240-250-260 5x9; 0400 ZL2KT 5x9, ZL2AGI 5x9;
0500 ZL3ADT worked 3D2CM 5x9;
0530 55.250, 59.750 American Samoa 5x9 also 59.750 5x9; in for three hours! 0700 49.750 back in and up to 5x8;
0600-0800 VK1, 2 and 3. ... ZL3TIC

12/12:
0000 VK4BRG/b 50.077, VK4ABP/b 52.345, VK4RGG/b 50.057.
0030 VK6BE, VK6KAT, VK6KRC, VK6AKT and VK6KJH.
0100 VK6RBU 50.306 559, VK6RPH/b 50.066 579, VK8RAS/b 50.047 599.
0134 ZL2WNB to KH7R 50.110.
0140 VK6AKT worked ZL3NW, VK6KRC worked ZL3TLG, VK6 to VK2, 3, 4, 5.
0200 American Samoa 55.250 5x9, also 59.750 5x9.
0239 ZL3ADT to V73AT 50.120 5x8.
0240 ZL3TIC to V73AT 50.120 up to 5x9.
0245 KHONTV Hawaii 55.2398 up to 5x8.
0330 KHON-TV 55.2398 0330 559 60 Hz NTSC.
0400 ZL3SIX 50.040 b/s from Hawaii best on NE Yagi.
0400 KVZK-TV 55.2498 599, Mt Alava American Samoa 59:750.
0430 KH6HI 50.065 519 Multi Es 7000 km. ... VK3OT.

14/12:
0010 VK8PN 5x1 50.110
0013 VK8RH 5x5 50.120
0030 55.250 American Samoa 5x8
0035 45.250,260 5x9. ... ZL3TIC

14/12; **Graham VK6RO** said: *"We had Es early from about 2200 with VK8RAS/b in for hours, plus 46.171, 46.240, 45.240, 45.250, also VK4RIK/b Cairns weakly. I did not work anyone as I was listening for indicators. Heard VK4JH. The VK8RAS beacon would not go away, along with the constant 57.250 TV."*

14/12:
0000 David VK2BA reported hearing FO5DR/b 50.050 previous UTC day.
0545-0555 JA2IGY/b, VK8VF/b, VK8RAS/b, VK4ABP/b, VK4RGG/b, VK4BRG/b.
0600 VK4 to VK6KAT Es.
0910 VK8MS to ZL2TPY, VK7GUN, plus VK2, VK3, VK5.
1030 VK8VF/b, VK8RAS/b, 48.23994 E2, Malaysia 48.2500.
1112 Anniversary QSO with VK8GF, first worked 14/12/62, 35 years ago.
1200 R1 TV offsets 499.7468-7476-74994-

0230 55.2498 American Samoa 5x9
0300 AH8A 50.140 5x5. Name is Bill, grid AH45, using a 1/4 wave antenna and 60 W.
0310 AH8A also worked ZL3TLG, ZL3AAU and ZL3TCV.
0315 55.2498 5x9. ... ZL3TIC.

Successful prompting of N5OLS/KH8 at the weekend alerted AH8A to the prospect of six metre QSOs with VK and Bill AH8A was worked at 0405 on 15/12 5x7, QSL via AC7DX. This was a return to the band after a spell of 17 years. YJ8UU also worked. ... VK3OT

On 14/12, **John VK4FNQ** reports working at 0044 VK6HK 5x5, 0053 VK2YO 5x5, 0108 VK2FZ/4 5x9, 0130 VK8ZCU 5x9, 0156 VK8MS 5x9, 0211 VK8LM 5x9, 2241 VK3TBM 5x5.

15/12: 0215 VK8RAS/b 559, 0307 VK6ET 5x5, 0340 VK6KAT 5x9, 0346 VK6JJ 5x9, 0358 VK6KZ 5x9.

15/12:

Bill AH8A had a busy period between 0300 and 0405, working at 0300 VK3SIX, 0305 ZL3TIC, 0310 ZL3AAU, 0312 ZL3TLG, 0315 ZL3TCV, 0355 ZL3ADT, 0400 VK3OT. From 0055 to 0105 YJ8UU worked VK3SIX, VK4KRC and VK2YO.

19/12: A slightly different slant on the news, from Tony Mann, a TV DXer living in Perth. He reports 5000 km Es to the Philippines as follows:
0930-1034 A2 55.2500 and 55.2505 60 Hz, 59.75 FM, A3 61.2500 60 Hz,
0955-1007 A5? 77.2500 – very weak, A2 55.2500 and 55.2505 also noted in Sydney at the same time.

20/12: 0610-0614 JR0QFA to ZL4TBN, ZL2TPY, ZL2AGI; 0605-0621 JA1RJU to VK4JSR, VK4KK, ZL4TBN, ZL2AGI, ZL2TPY; 0220 VK3OT to YJ8UU 5x9.

20/12: **Mike Farrell VK2FLR** says that he spent a very pleasant evening with Chris Gare G3WOS, who was in Sydney for a couple of days. Chris is Chairman of the UKSMG and showed Mike his Web site at *http://www.uksmg/org*. Well worth a look.

24/12: ZL3TIC report:
0015 55.250-59.750 5x9 – in all day up to 0730.
0700 very strong back-scatter 45.240-250-260, 46.170-240 all 5x9 also 55.240-250,260 5x9.
0745 very strong VK2, 3, 4, 5, 7 in all night.
0800 48.250 video 5x8.
0805 VK6JJ 50.140 5x9.
0815 FM broadcast band opened 101.700 (mix 101) 5x9 and 105.700 5x9.
0818 148.183 pagers in for five minutes – nothing worked on two metres.
0830 48.240-250-260 up to 5x9 beaming VK6.

26/12:
2200 46.170-240, 57.240-250-260 5x9.
2230 very strong Es to the North Island, worked ZL3NE, ZL1THQ, heard ZL2KT, ZL4TBN, ZL4LC, ZL3TY and others.
2235 FM broadcast band wide open, stations heard 101.5, 106.3, 105.2, 102.5, 107.7, 106.1, 104.1, 104.9, 105.1, 105.7, 106.5, 107.9 all 5x9, most coming from Sydney, FM band open for two hours.
2310 148.183 pagers 5x9.
2320 VK2FB 144.1 5x5.
2325 VK2BBF 144.1 5x7.
2330 VK2XK 144.1 5x7.

27/12:
0045 55.250 American Samoa 5x9.
0100 YJ8UU 50.135 5x9.
0110 FK1TK 50.140 5x9.
0130 55.250 American Samoa 5x9.
2100 46.240-170, 57.240-250-260 all 5x9.
2200 very strong VKs in VK1, 2, 3, 5, 6, 7.
2320 VK6YU 5x7 50.140.

28/12:
0010 55.250 American Samoa 5x9.
0123 50.150 VK6AKT 5x5.
0126 50.150 VK6HK 5x7, also 57.240-250-260 5x9, 69.750 5x9, 86.200 and 86.250 5x9. ... ZL3TIC.
28/12: From 0421 Doug VK0YQS at Macquarie Island worked ZL3TIC 5x9, also ZL3NW, ZL3ADT, ZL3AAU, ZL3TLG, ZL3TIB and ZL3TY.
01/01/98 from ZL3TIC.
0600 49.750 +/- 5x9 with lots of offsets.
0615 heard weak JA on 50.110 JA1?
0615 46.170-240; 57.240,250,260 5x9.
0615 55.250 American Samoa 5x9.
0900 86.200, 86.250 5x9 also 107.500 and 107.900.
0935 148.183 pagers up to 5x8, nothing worked on two metres.
0935 Very strong VKs – VK1, 2, 3, 4, 5, 7 5x9.
0935 48 MHz TV strong beaming VK4. I would like to know where these were coming from as the offsets were different from normal. Here are the offsets at zero beat: 48.26040, 48.23970, 48.24997, 48.25000 (many on this frequency), 48.23860, 48.25700, 48.24940, 48.24990. Any ideas?

The Calling Frequency – Again!

Several prominent amateurs have made comments along these lines: *"At busy times 50.110 MHz can be almost constantly in use by VK2, VK3, VK4 and VK5 stations. If they are not using it for QSOs, as do a few with great consistency, there is an endless procession of stations calling and then arranging an alternative frequency to use. A given station may only be there for a minute or so but when station after station goes through the same procedure the frequency is rarely clear at all."*

It appears we now have the new calling frequency operating on 50.200 MHz and so far people are getting used to working DX only below 50.150 and locals (ie VKs) above 50.150. It is working well and getting better. I was annoyingly amused recently to hear one amateur, who regularly holds QSOs on 50.110, say that he is *"now too old to change his ways!"* Really!

Thanks for your co-operation to those who are attempting to do the right thing and leave the segment up to 50.150 free of local contacts. Overseas, the idea is working well. Unfortunately, many VKs who continue to operate below 50.150 are probably not WIA members and therefore never read these notes. Also, shifting from 50.110 to say 50.115 or 50.120 is not a great help either due to splatter on 50.110 when signals are strong or the noise blanker is in use. When you QSY from 50.110 go above 50.150, there's plenty of room up there.

New Station

A new station is Rick Kowalewski VK6XLR at Exmouth, North Western Australia, *rickski@ozemail.com.au* or *vk6xlr @nwc.net.au* and *http://www.nwc.net.au/members/vk6xlr*.

Rick is a long way from anyone but is managing to work to various states on six metres. He is also attempting a contact with BY1QH in Beijing via two metres TEP. He says: *"No luck at this stage. Hopefully February will bring some results."*

Such a contact is possible as Beijing is nearly due north of Exmouth and about the right distance, based on previous experiences with such contacts between Japan and VK6 and western VK4. Also, in my view Rick would be well advised not to overlook a possible two metre path to Africa.

Closure of VK3SIX/b

Steve VK3OT advises: *"After due consideration to the time I will spend away, the remote location of the VK3SIX/b site, and the possibility of a fire being caused by equipment malfunction spreading from the caravan to neighbouring grasslands and state forest, I have taken the only sensible action and shut down and isolated the whole site until 1 March 1998. This paves the way to run keyers from BP51 Alaska on the same frequencies, so if you hear VK3SIX it will be /KL7, providing permission is granted."*

Thanks to *Six News*, VK3OT, ZL3TIC, ZL4TBN and others as noted for much of the above information.

A Mid-Winter Contest

Rod VK4KZR has proposed the establishment of a mid-winter contest to encourage operation via more challenging propagation modes like tropo-scatter, meteor scatter, ducting, etc. It should also create year-round interest in VHF/UHF/SHF operation. What do you think?

Another DXpedition!

Advice of this DXpedition was sent too late for inclusion in the January notes, but at least you are advised that a group of amateurs were planning another DXpedition in mid-January 1998 for a period of approximately two weeks, with timing and duration dependent on the weather and propagation leading up to that time.

Those directly involved were to be Alan VK3XPD, Russell VK3ZQB, Trevor VK5NC, Colin VK5DK and David VK5KK, with several other potential 10 "Gigers" joining the activity, and these include Rob VK3DEM, Roger VK3XRS, David VK3KAB, Max VK3TMP, Mark VK3TLW and Roger VK5YYY at Whyalla.

There would undoubtedly be some activity from a few other active stations in VK6 and

VK5 who have a range of various transverters. They are: Wally VK6KZ, Neil VK6BHT, Alan VK6ZWZ, Wally VK6WG and Roger VK5NY, possibly others. Results in next month's notes.

John Moyle Field Day

Alan VK5AR (formerly VK5BW) said in a packet message that he expects to operate portable from Mount Bryan during the John Moyle Field Day Contest in March. He will operate on 50, 144, 432 and 1296 MHz SSB, CW and FM, with possible HF liaison on 7195 and 3695 kHz.

He will run 100 watts on 50, 144 and 432 and 10 watts on 1296 MHz. K1FO antennas on 18 foot booms will be used for 144 and 432, a four element Yagi on 50, and a 28 element loop Yagi on 1296 MHz. Alan would welcome contacts.

From Alaska

Steve VK3OT/KL7 reports in an e-mail that he has a six metre Yagi operating at 50 feet, also a three element 10 metre Yagi at 40 feet. Using a Windom antenna on HF he is having many contacts with Asians in BV/BY/UA0/JA on 7 MHz CW. He says: *"It was warm today at minus 12 and I was able to work outside all day in light snow showers. Sun set at 4.00 pm local today (2/1) and gaining an extra eight minutes per day as we go along. Happy New Year to all."*

Two Metres

Barry VK3TBM said conditions on 8/12 between 0945 and 1100 provided a good path from Melbourne to Mount Gambier, allowing him to work Trevor VK5NC, Colin VK5DK and John VK5DJ. The VK5VF beacon was not audible.

Ron VK3AFW reports on a mixed bag of contacts:
8/12: 0735 50.250 worked Joe VK7JG 5x9, Es down to 400 km!
0743 144.100 Joe VK7JG, 5x6-7, tropo.
0745 144.080 Andrew VK7XR, 5x1-5, tropo.
0746 50.250 Andrew VK7XR, 5x1, tropo. No sign of Es.
0938 50.180 VK5PO working VK7JG, no sign of Joe.
0943 50.180 John VK5PO 5x7-9.
0949 144.090 VK5NC 5x6-7; Barry VK3TBM also worked VK5NC.
1010 50.150 VK5ZTJ/ME Roseworthy, good signals from the 20 watt rig.
1020 VK5GN, 5x7-8.
1026 David, VK5AYD at Coober Pedy, 5x7-8. David's 20 watt signal still in at 1058 when he went QRT.
2100 ZL TV in.
2115 Des VK3CY worked Andrew VK7XR, on 432.150, 5x1 at 580 km.
9/12: **John VK4FNQ** reports on a good two metre opening from North Queensland.
0720 strong signals on 143.750 MHz.
0726 heard a station talking on 144.100 very weak.
0731 after many CQ calls heard a very weak QRZ on 144.100.
0745 a land line to Garry VK4ABW who now lives about 10 km away.
0740 VK4ABW worked VK5NC 144.100 Mt Gambier.
0743 VK4FNQ worked VK5NC 144.100.
0751 VK4ABW worked VK5DK 144.100 Mt Gambier.
0758 VK5NC Call CQ 5x9.
0808 VK4ABW to VK4BKS 144.100 Atherton.
0810 VK4FNQ to VK4BKS.
0826 VK4FNQ to ZL4TBN 50.220 5x9.
VK4FNQ also made many CQ calls on 144.200 MHz, nothing heard.
0715 ZL stations on 50.110 MHz working JA, but no JA into NQ.

VK4FNQ heard no sign of 49 or 48 MHz TV all day. VK4FNQ monitors 50.110, 50.200 and 144.100.

Gordon VK2ZAB reports the following on two metres SSB tropo contacts. Signals were low at S1-3, except ZL1IU at S5-6.
07/12: 2047 VK2ZAB to VK4TZL.
12/12:
0900 VK2BBF to ZL2TAL, ZL2VAL. VK2XKE to ZLK2TAL, ZL2VAL. VK2ZAB to ZL2TAL.
2030 VK2BBF to ZL1IU. VK2ZAB to ZL1IU. VK3BWT to ZL1IU
13/12: 0700 VK2BBF to ZL2TAL. VK2XKE to ZL2TAL.
24/12: Gordon VK2ZAB also reported that on two metres at 0109 VK2BQJ to ZL1IU; 0206 VK2ZAB to ZL1UWQ; 0208 VK2BBF to ZL1UWQ; 0216 VK2BQJ to ZL1UWQ.

Gordon VK2ZAB notes: *"The two metre opening reported by VK2XKE has turned out to be of longer duration than was first thought. Any duct, let alone a lasting duct, this early in the season is unusual although not unprecedented. The first contact was on 2 m SSB between VK3BWT and Nick ZL1IU at about 0400 UTC on 26/11/97. This was followed by 2 m SSB contacts with ZL1IU by VK2BBF, VK2ZAB, VK2DXE and VK2XKE. ZL1IU was last heard in Sydney at about 0800 UTC 26/11.*

"The beacon on 144.240 MHz near Auckland had been heard in Sydney from time to time during this period. However, at about 2205 UTC 26/11/97, VK2BBF worked Ray ZL2TAL on 2 m SSB. VK2ZAB followed with a 2 m SSB contact with ZL2TAL. Throughout the remainder of that day and up until about 0600 UTC on 27/11, VK2BBF and VK2ZAB were in more or less continuous contact with ZL2TAL and ZL2VAL on 2 m SSB. 70 cm was tried with ZL2TAL without success. Also on 27/11 VK2ZAB made contact on 2 m SSB with ZL3NE at 2251, ZL1UWQ at 0530 and ZL1IU at 0553. A successful contact on 70 cm SSB was also made between VK2ZAB and ZL3NE at 0545 27/11. Two metre beacons on 144.240 MHz, 144.256 MHz and 145.226 MHz were heard off and on throughout the day.

"Isn't it time that we began to look for a separate cause or combination of causes for this E layer propagation on two metres rather than thinking of it as just an extra intense extension of the E layer propagation on six metres?"

Send your views on this to Gordon VK2ZAB at *VGMCD@bigpond.com*

Meteor Scatter

Ron VK3AFW said: *"Adrian VK2FZ/4 completed a two way SSB QSO with VK3AFW via meteor scatter on two metres from 2.40 to 3.05 am EASST (1540-1605 UTC) on 14/12. The QSO should have been completed earlier, but VK3AFW was half asleep and did not copy two long bursts which took place around 2.45 and 2.50 am. Replaying the tape showed no reason why the complete call signs group and a five digit number should not have been copied earlier. VK3AFW intends to have a strong coffee before the next sked. Any other takers out there?*

"Also at 2200 I worked VK1s BG, DO, MP and VP on two metres via aircraft enhancement. I was pleased to catch up with Eddie VK1VP as he is behind Black Mountain and not often heard by me here. I also worked VK1BG on 70 cm.

"On 15/12, Adrian VK2FZ/4 reported to me that he had worked John VK3KWA on two metres MS at around 3 am local (1600 UTC)."

Microwaves

Wally VK6KZ reports: *"Neil Sandford VK6BHT and I are having great success from home to home with long rag chews on 10 GHz. Last night, 10 December, it was for one hour peaking 5x9, waited one hour and spoke for about 15-20 minutes before I went to Fremantle and had another 5x9+ contact for about 20 minutes. Another contact this morning but much weaker 4x1 both ways. This was while there was the trailing edge of the trough along the west coast. Temperature at Perth was 21 degrees and relative humidity 98%.*

"We have now had 10 home to home contacts over the 378 km path. Sad thing is that Neil will be departing Geraldton for the east in mid-January so I will be a very isolated 10/24 GHz operator."

A message from David VK5KK advises that Roger VK5YYY at Whyalla, about 250 km NW of Adelaide, is a new operator on 10 GHz. The narrow-band equipment consists of a G3WDG transverter running 200 mW into a 60 cm dish. Roger has set up his equipment to work from home. Apparently he has a clear path towards the south east, and is the seventh operator to make it to narrow-band 10 GHz in SA. Roger's phone number is 08 8644 0318.

Closure

I have simply run out of space. E-mails received after 1 January have had to be held over until next month. I hope you will understand.

Closing with two thoughts for the month:

1. If it weren't for having more leisure time these days, many men would never finish the work they take home from the office, and

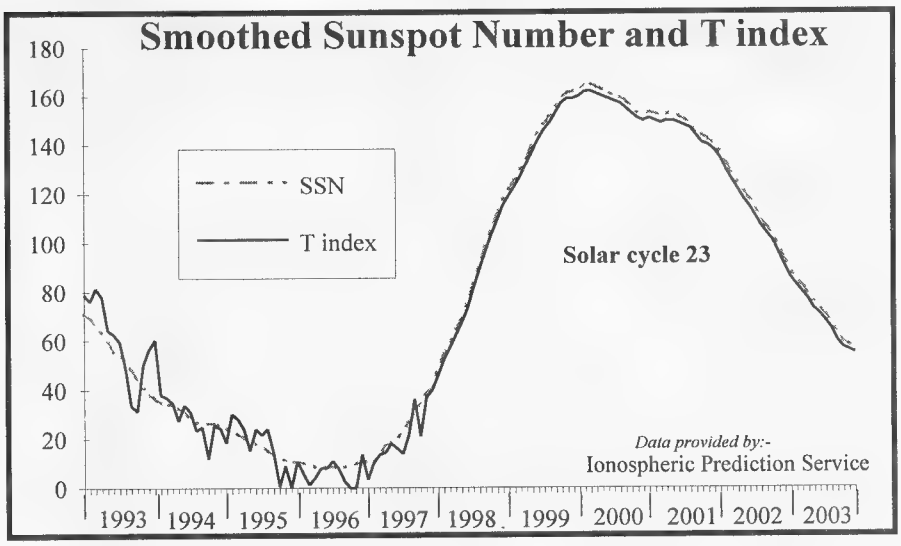
2. The motor car did away with horses. Now it's working on the rest of us.

73 from The Voice by the Lake

ar

Ionospheric Update

Evan Jarman VK3ANI
C/o PO Box 2175
Caulfield Junction VIC 3161



Solar Activity

Solar flare activity around the middle of the last quarter produced class X flare activity during November. These flares came from two solar regions, the first two flares belonging to the same region. Those flares were class X2.1/2B at 0558 UTC on 4 November and class X9.0 at 1159 UTC on 6 November. The second region produced a class X2.6/2B flare at 1317 UTC on 27 November.

Ionospheric Activity

Depressed MUFs were observed in November. The first, and deeper, was observed on 8 November. It affected northern Australia with depression of up to 60% early in the UTC day recorded at Darwin.

The latter depression affected southern Australia. It was observed on 23-24 November.

Geomagnetic Activity

Significant geomagnetic disturbances were observed during the quarter. A sudden impulse observed at 2252 UTC on 6 November deepened to minor storm levels on 7 November. The class X flare on 4 November is suspected to be the cause.

A second disturbance deepened to minor storm level between 0900 on 22 November and 1500 on 23 November. A coronal mass ejection on 17 November is suspected. The coronal mass ejection on 26 December also affected geomagnetic activity on 30 December, degrading HF propagation.

The Graphs

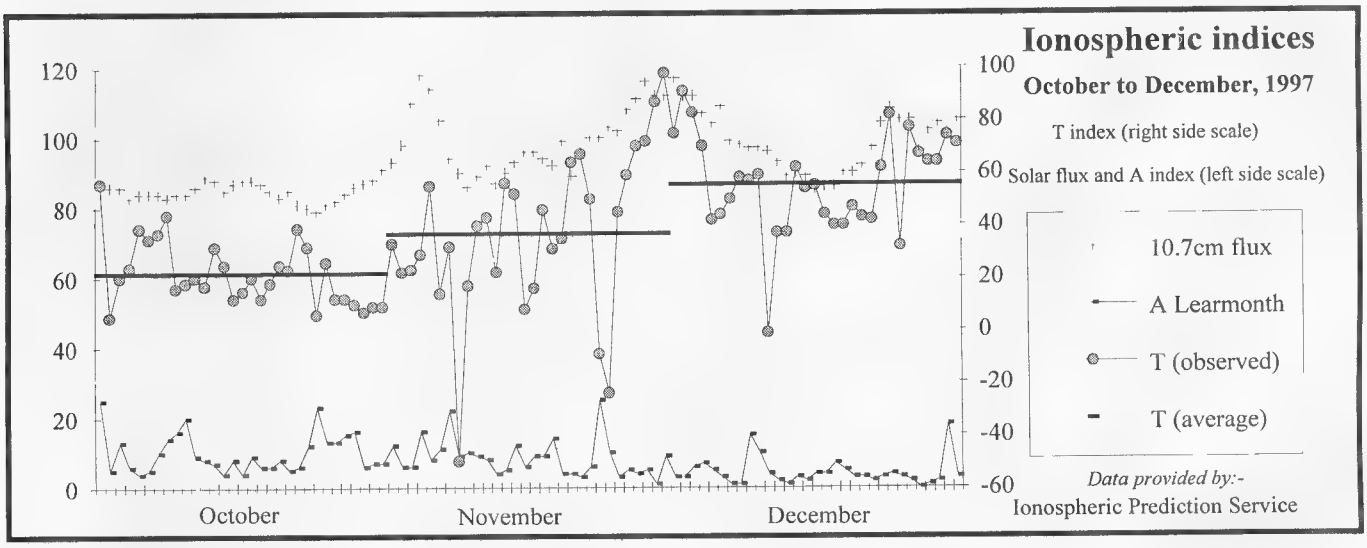
This is the third year that graphs of observations and trends have been included in this update. Minor changes have been made to make them easier to read. They are provided to enable a quick assessment of trends.

The smoothed sunspot number and T index graph is designed to show the solar cycle and where conditions currently fit into that cycle. The time scale is set to cover one solar cycle, nominally eleven years. Current conditions are designed to be within the middle three years. Past values are observations, future values are predictions. The end of the quarter (in this case 31 December 1997) is where past values go to predictions. Observations show the variation in ionospheric conditions from the more idealistic smoothed sunspot number.

The T index can be thought of as the sunspot number that best matches the radio ionosonde observations. Predicted values show a close correlation, as you would expect. The value used in the *HF Predictions* each month comes from the table used to draw this graph.

The ionospheric indices graph displays the observations and the derived T index for each day. It covers the last quarter, the period that the update applies to. The effect of major events, like flares and storms, on propagation can be seen. As an example, compare the graph with the November flare and geomagnetic activity mentioned in the DX and SWL columns of last month's *Amateur Radio*.

It can also be used as a current three month enlargement of the solar cycle graph. The trend in conditions should be identifiable in the variation of the daily observations. The monthly average of the observed T index is included to highlight this trend. **ar**



HF Predictions

Evan Jarman VK3ANI

These graphs show the predicted diurnal variation in key frequencies for the nominated circuits. They also nominate the best amateur band for communication.

The frequencies, identified in the legend, are:-

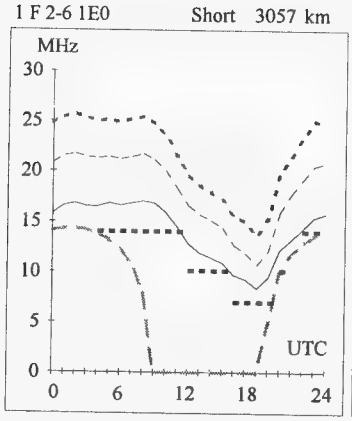
- Upper Decile (F-layer)
- F-layer Maximum Useable Frequency
- E-layer Maximum Useable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency

The predictions were made with the Ionospheric Prediction Service program, ASAPS V3.2. The T index used is shown above the legend. The Australian terminal azimuth, path and propagation mode are also given for each circuit.

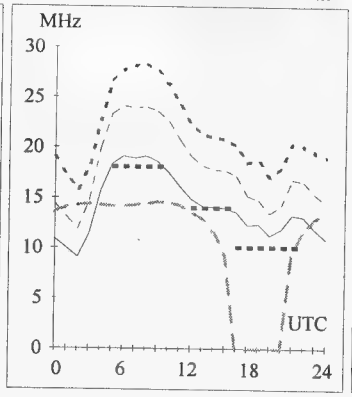
ar

T Index: 52

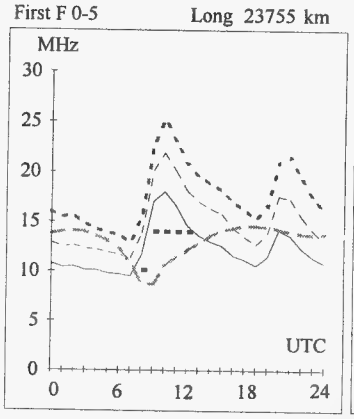
Adelaide-Christchurch 119
1 F 2-6 1E0 Short 3057 km



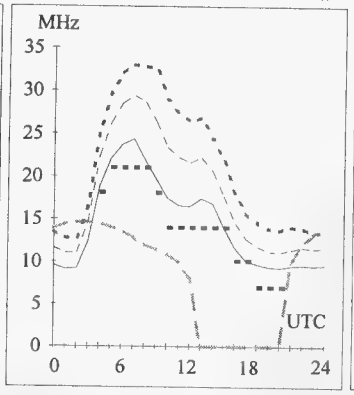
Brisbane-Lusaka 238
First F 0-5 Short 12385 km



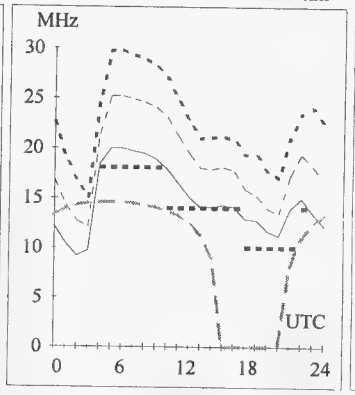
Adelaide-London 132
First F 0-5 Long 23755 km



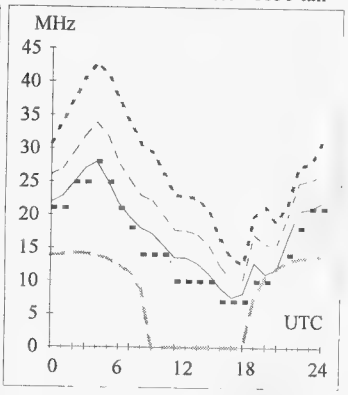
Brisbane-Moscow 321
First F 0-5 Short 14071 km



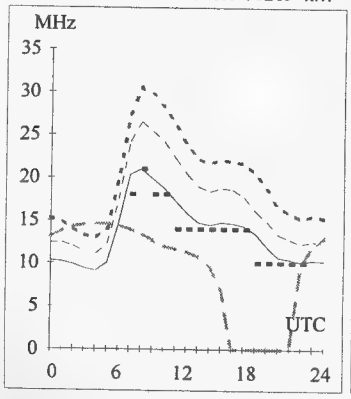
Canberra-Cairo 283
First F 0-5 Short 14265 km



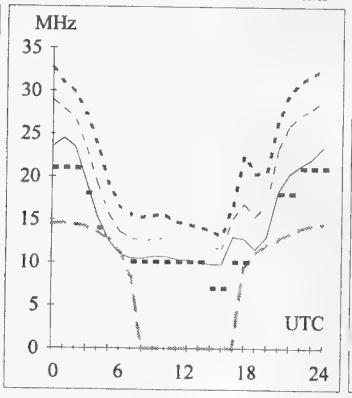
Darwin-Honolulu 65
First 3F 3-8 3E0 Short 8636 km



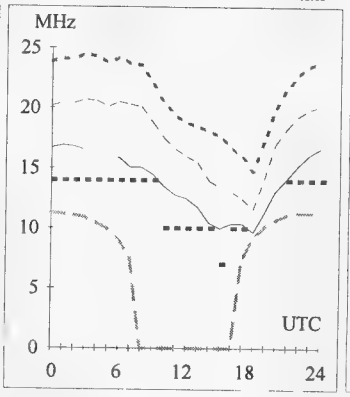
Adelaide-London 312
First F 0-5 Short 16269 km



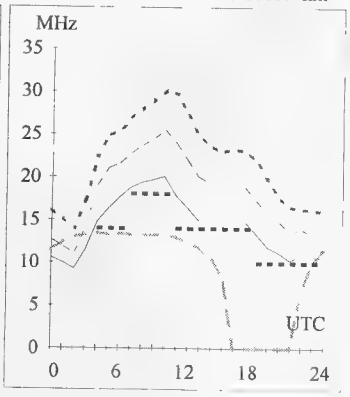
Brisbane-Seattle 44
Second 4F2-6 4E0 Short 11845 km



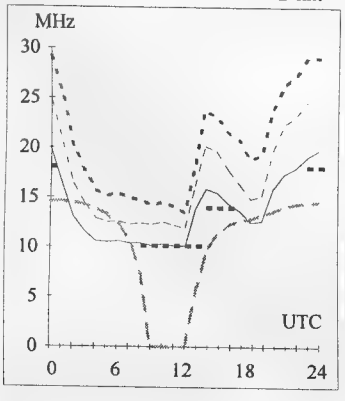
Canberra-Papeete 89
Second 3F8-12 3E0 Short 6309 km



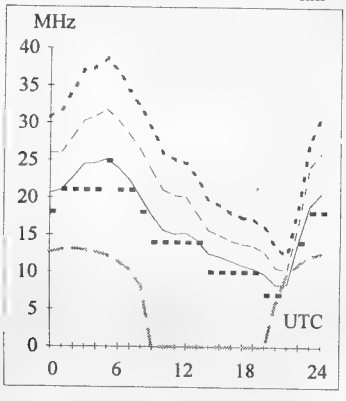
Darwin-Pretoria 242
Second 4F4-8 4E0 Short 10639 km



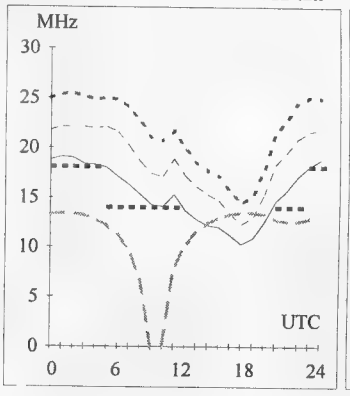
Adelaide-New York 67
First F 0-5 Short 17092 km



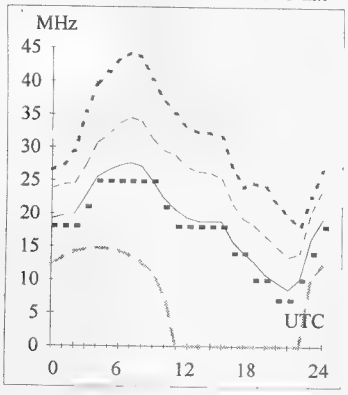
Brisbane-Seoul 338
Second 3F5-9 3E0 Short 7722 km



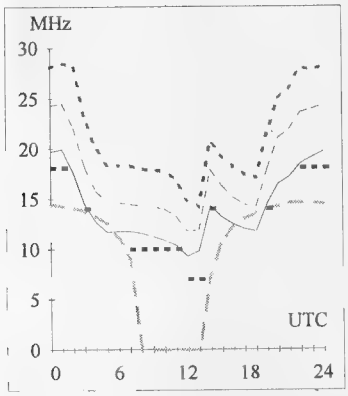
Canberra-Santiago 147
Second 4F3-6 4E0 Short 11322 km



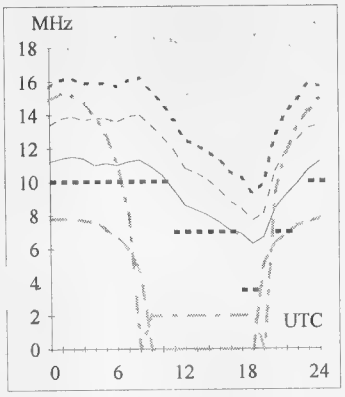
Darwin-Singapore 295
First 1F 0-5 1E0 Short 3351 km



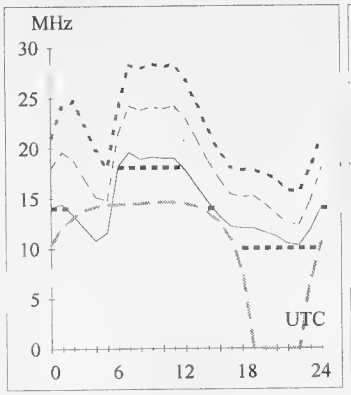
Hobart-Dallas 79
First F 0-5 Short 14405 km



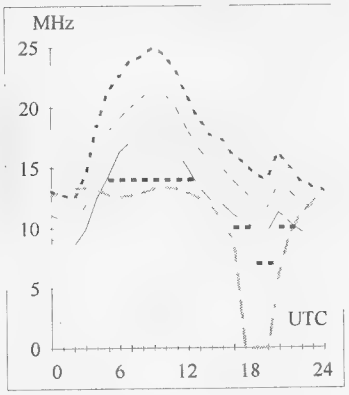
Melbourne-Auckland 97
Second 2F18-24 2E4 Short 2623 km



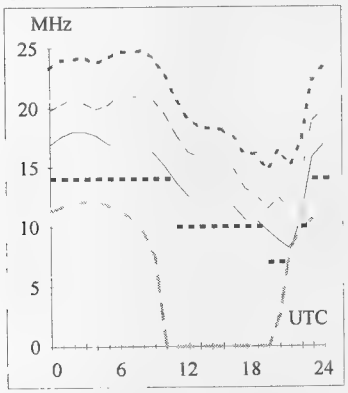
Perth-Accra 260
First F 0-5 Short 12787 km



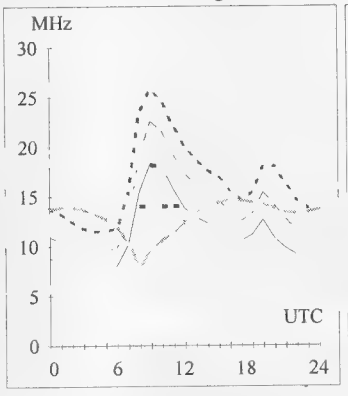
Sydney-Capetown 218
Second 4F4-9 4E0 Short 11012 km



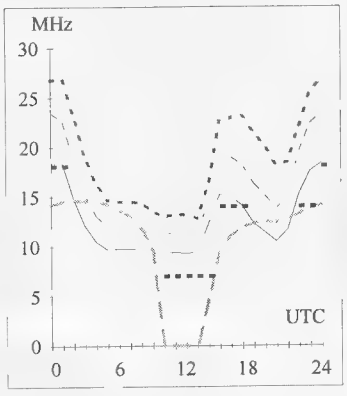
Hobart-Manila 331
Second 3F7-13 3E0 Short 6932 km



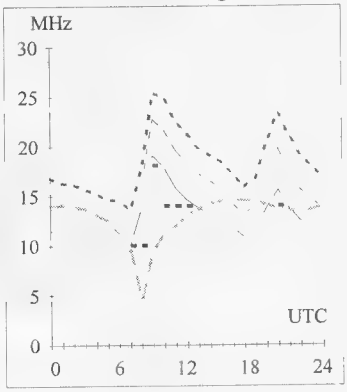
Melbourne-Helsinki 141
First F 0-5 Long 24818 km



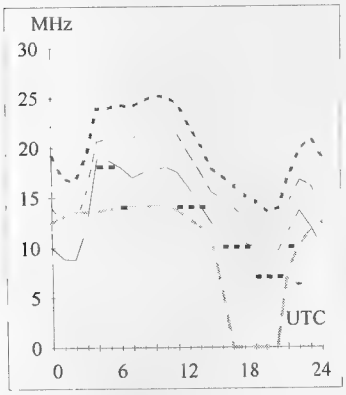
Perth-Chicago 55
First F 0-5 Short 17659 km



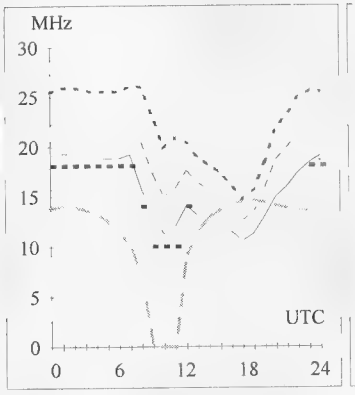
Sydney-London 139
First F 0-5 Long 23032 km



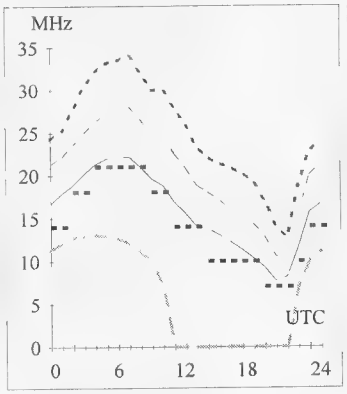
Hobart-Nairobi 255
Second 4F3-7 4E0 Short 11562 km



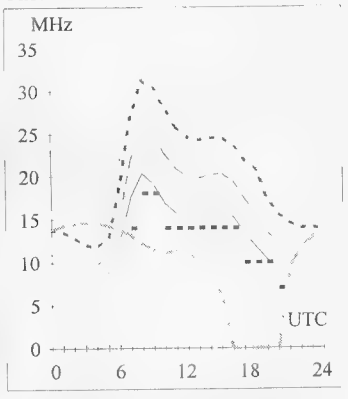
Melbourne-Lima 133
First F 0-5 Short 12950 km



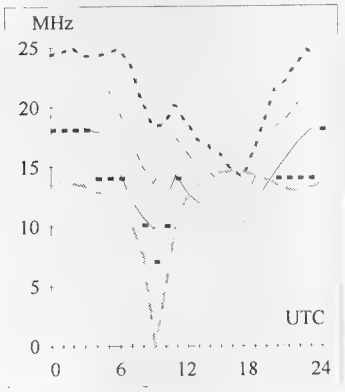
Perth-Osaka 17
Second 3F5-10 3E0 Short 7684 km



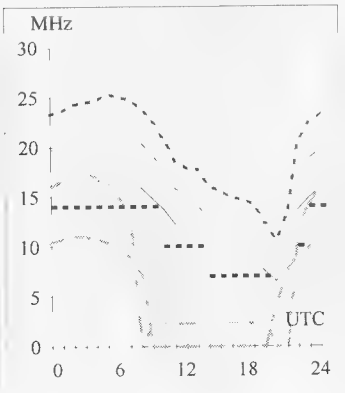
Sydney-London 319
First F 0-5 Short 16992 km



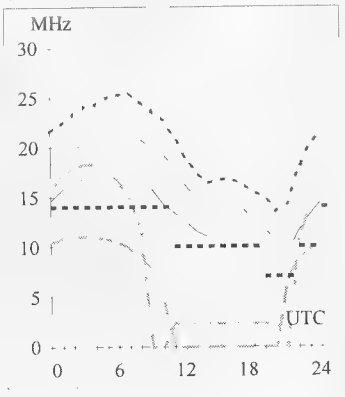
Hobart-Surinam 145
First F 0-5 Short 15362 km



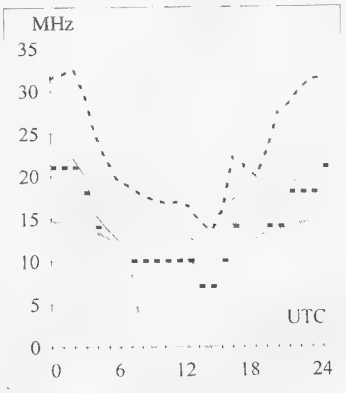
Melbourne-Tokyo 356
Second 4F9-14 4E0 Short 8192 km



Perth-Port Moresby 59
First 2F9-13 2E0 Short 4073 km



Sydney-Los Angeles 61
First F 0-5 Short 12075 km



HAMADS

- Hamads may be submitted on the form on the reverse side of the *Amateur Radio* address flysheet. Please use your latest flysheet where possible.
- Please submit separate forms for **For Sale** and **Wanted** items, and be sure to include your name, address and telephone number (including STD code) if you do not use the form on the back of the *Amateur Radio* address flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment offered for sale should be included in the Hamad.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
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- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of *Amateur Radio*, at:

  Postal: 3 Tamar Court, Mentone VIC 3194
  Fax: (03) 9584 8928
  E-mail: vk3br@c031.aone.net.au

TRADE ADS

• **AMIDON FERROMAGNETIC CORES**: For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Assoc TV Service, Hobart: Truscotts Electronic World, Melbourne and Mildura: Alpha Tango Products, Perth: Haven Electronics, Nowra: and WIA Equipment Supplies, Adelaide.

• **WEATHER FAX programs** for IBM XT/ATs *** "RADFAXZ" $35.00, is a high resolution short-wave weather fax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" $45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" $75.00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add $3.00 postage. ONLY from M Delahuntly, 42 Villiers St, New Farm QLD 4005. Ph 07 358 2785.

• **HAM LOG v.3.1** - Acclaimed internationally as the best IBM logging program. Review samples....AR: "Recommend it to anyone":
The Canadian Amateur: "Beyond this reviewer's ability to do it justice. I cannot find anything to improve on. A breakthrough of computer technology". ARA: "Brilliant". Simple to use with full help, the professional HAM LOG is immensely popular (now in its 5th year), with many useful, superb features. Just $59 (+ $5 P & P), with a 90 page manual. Special 5 hour Internet offer. Demos, brochures available. Robin Gandevia VK2VN, 02 369 2008 BH, fax 02 369 3069. Internet address rhg@ozemail.com.au.

FOR SALE NSW

• **Kenwood TS-940S**, approx 15 - 20 hours use, like new; **SM-220** monitor and **BS-8** bandscope, new in boxes, never connected; matching **SP-940** filtered speaker; **MC-60** desk mic; all complete with boxes, handbooks, workshop manuals and special manuals from Kenwood, $3250 the lot, or nearest sensible offer. **Icom IC-575H** 6 & 10 m 100 W all mode txcvr with FM, manuals, handbook, box, etc, $1750 ONO. **Kenwood TS-811B** 70 cm all mode txcvr, excellent condn, $1000 ONO. **Kenwood TS-700SP** all mode 2 m txcvr, digital readout, built-in PSU, very clean, goes well, $650 ONO. **Dynascan USA Model E-200D solid state signal generator**, 100 kHz to 216 MHz in 7 bands, all metered, very good generator, original handbook, etc, $350 ONO. All items being sold due to ill health. A Walsh VK2TBW, 02 4861 2092, fax 02 4861 1536

• **Collins 51S-1** receiver, $600. Tom VK2OE, 02 4646 1024 (evenings).

• **Kenwood TS-140S**, VGC, $900. **Yaesu FT-747**, VGC, $750. **Icom IC-25A** 2 m txcvr, $200. **Icom IC-2SAT** 2 m h/held txcvr, $200. Bruce VK2WWW, 02 6831 1188.

• Deceased estate of Arthur VK2FFH. **Kenwood TS-430S** txcvr, serviced recently at Kenwood, DC power cable, service and operator manuals, $850, P&P extra at cost. John VK2FUR, 02 4625 1812.

• **Philips FM-828E** txcvr, converted to 6 m; **DSE 6 m half wave antenna**; **Drake TV-1000-LP** low pass filter, $100 total. John VK2WW, 02 9546 1927.

• **QTH**, elevated position, flat block 700 sq metre, walk station, Mount Colah near Hornsby Sydney, DA approved for subdivision or keep as is, with Council approved 18 m tower, 100 sq m, house with 3 car garage/shack, built 95/96, NU steel construction, brick veneer, tile floor, northerly aspect, high side street. Ted VK2EZQ, QTHR, 019 460 437, 7 pm to 9 pm.

• **Alinco DR-590** 2 m/70 cm FM mobile txcvr, s/n 884, **EDC-20** remote panel kit, **Maldol 2 m/70 cm duplexer**, workshop manual $450.00. **Microwave Modules 435 linear amp**, 50 W out, 10 W in, s/n L432/507792010, $100.00. Randall VK2EFA, QTHR, 08 8087 5285.

• Urgent Sale! **Kenwood TS-50S** HF txcvr, $1200. **AT-50** ATU to match, $200. **Kenwood TM-2570A** 2 m FM mobile, $120. **Uniden HR-2510** 10 m mobile, $300. **Uniden Sundowner UHF CB txcvr**, $200. **Yaesu FT-26** 2 m FM h/held, $200. **Yaesu FL-2100B** HF amp, 400 W PEP, non-WARC, $300. No reasonable offer refused. R E Taylor VK2AOE, QTHR, 02 9449 6364.

• **Icom 02A** 2 m h/held, extra batteries and antenna, manual, good condn, $250. Rod VK2BRW, 07 5524 3722 (Gold Coast).

• **Yaesu FTV-650B** 6 m transverter, $140. **Microwave Modules 2 m transverter**, $120. **Lafayette HA800** receiver, $80. **Star SR200** receiver, $80. **Marine AM txcvr**, 2-10 MHz, $50. **Converted CB** now SSB on 28 MHz, $50. All with documentation. Carl VK2TP, QTHR, 02 6845 1999 (BH), 02 6846 7530 (AH), fax 02 6845 1435.

• **Tower, 60 ft (18 m)**, three stage wind-up, three sets guys and turnbuckles, **TH6DXX** 6 el tribander, **Daiwa rotator**, dismantled Sydney, $900. Ted VK2EZQ, QTHR, 019 460 437, 7 pm to 9 pm.

FOR SALE VIC

• **Eddystone 640** communications receiver, 1.7 to 30 MHz continuous, good original condn, working, needs little work, best offer from collector. Bob VK3PT, 03 5439 6314.

• **Kenwood AT-250** automatic ATU, all bands incl WARC, mint condn, with carton and instruction book, $250. Bob VK3PT, 03 5439 6314.

• **IC-736** 100 W HF-6 m txcvr, auto tuner, AC PSU, s/n 2166, immaculate condn with manual and original packing boxes, $2400 or best offer. Ian VK3AQU, QTHR, 03 5751 1631 (AH).

• **Amateur Call Book CD ROM 1997** International and American listings on one CD, normally $75, bargain at $45. Alf VK3LC, QTHR, 03 9773 5334.

• **Collins 51J-4** receiver, with cabinet for table mounting if desired, mint condn, $500. Howard, 03 9408 7597

• **Ameritron linear amp**, 600 W, 3 x 811 triodes, s/n AL81113539X, practically new, used only once, too heavy for invalid to handle, $900 plus **MFJ-815B** power meter. A Lucani VK3ALA, QTHR, 03 5728 6624.

• Commercial VHF and UHF mobile radios, 60s and 70s vintage, **AWA 25M**, **Philips 747**, **Pye 734 and 706**, **STC 151 and 191**, **Vinten MTR20 and MTR30**, $15 each Jeff VK3ZJS, QTHR, 03 5428 6309.

• **Kenwood TS-711A**, all mode VHF base station txcvr, s/n 5080554, 144 to 148 MHz, 25 W output, instruction manual, mic, EC, $900. Steven VK3CIM, QTHR, 03 9547 5894.

• **Power supply transformers**: 20 V at 100 A, $75; suit high voltage supply, 1875-0-1875 V at 1 A, $75. **Filament transformers**: 2.6-0-2.6 V x 3 at 14 A, $30; 5-0-5 V at 10 A, $20; 10 V at 20 A, $20. **Step down transformer:** 240 V/110 V at 6.8 A, $35. Ray VK3RD, 03 9726 9222.

• **Plessey MTR-8000** 6 M txcvr, 24 channel, 40 W, all national repeaters and simplex frequencies, includes documentation and mounting cradle. Tony VK3ZOT, 03 9728 5598 (AH).

• Deceased estate VK3ALZ. **DSE wattmeter**, multirange, 144 MHz, 150 W FS; **DSE wattmeter**, multirange, 432 MHz, 50W FS; **DSE RLC Bridge**; **Kenwood TS-140** HF txcvr; **Emtron SWR and power meter**, 1.8-60 MHz; **Icom IC-726** HF + 6 m txcvr; **VK Powermate PSU**, 13.6 V at 20 A; **Boonton model 225-AP signal generator**, 10-500 MHz.; **Trio CS-1830** 30 MHz oscilloscope; **432 MHz solid state linear power amplifier**, homebrew, 80 W PEP; **HF ATU**, homebrew; **160 m ATU**, homebrew; **Emotator 747SR** rotator with controller, plugs and cables; **Tower**, homebrew, 4 square welded sections, each approx 7 m; **144 MHz Quad** antenna, approx 8 m boom; **144 MHz Yagi**, approx 8 m boom; **Single piece spun aluminium dish**, approx 3.8 m dia; **TET Emtronics TE33** triband HF beam, 14/21/28 MHz, brand new in carton and sealed bags; **Wayne Kerr Model B601 RF bridge**, 15kHz to 5MHz; **DSE HF linear amp**, 160-10 m, 100 W; **VTVM**; **Hewlett Packard Model 618** microwave signal generator, to 7.6 GHz; **DSE frequency counter**.

1 GHz. First reasonable offer accepted. Contact Ron VK3AFW, QTHR, 03 9579 5600 (AH).

• **Kenwood AT-50** auto ATU for TS-50, new in box, $250. **Yaesu World Clock**, QTR-24D, as new in box, $50. **Kenwood SP-520** spkr, as new, $35. **Kenwood TS-120V** 10 W SSB txcvr, EC, $325. **Swan 350** HF txcvr, mint condn, suit serious collector, $250. **Kenwood PC1A** phone patch, $20. **Yaesu FP-12** PSU, OK for 100 W txcvr, $120. Ron VK3OM, QTHR, 03 5944 3019.

• **Kenwood TS-520S** txcvr, manual, mic, **DG-5** digital display, both EWC, $320. **Heathkit HW-101** HF 100 W txcvr, manual, mic, PSU, GWC, $95. **Heathkit SB-101** HF txcvr, PSU mic, manual, needs 6146 finals, $40. **Yaesu FT-221** 144-148 MHz SSB/FM base/mobile txcvr, mic, manual, $105. **6 metre 5 el Yagi**, $60. **10 metre vertical antenna**, ex-CB, $20. **Realistic DX-150A** 4 band comms receiver, OK, $40. **Rapar SA-150** 15 W valve stereo AF amp, excellent condn, $40. Robin VK3TNW, QTHR, 03 9729 1139 (anytime).

• **TS-430S**, $850. **FT-101ZD**, $550. **FV-101Z** ext VFO, $100. **FT-101B**, $200, 2 m HTs, **FT-290R**, $150; and **FT-23**, $150. **Cushcraft A3S** 3 el triband, $500. **FM-321** 70 cm mobile, $150. **AWA RT80** VHF Hi-Band, $40. **Leader 10 MHz CRO**, $150. **AWA T242 Dist/Analyser**, $800. **500 MHz frequency counter**, $150. **Sig Gen/Counter**, 1 Hz resolution, 50 kHz to 80 MHz, $500. **NJ2-900** analogue phone tester, $2000. **4CX350F**, $150. **2C39A**, $50. Lee VK3GK, QTHR, 03 9544 7368, 015 810 101.

FOR SALE QLD

• **Icom IC-740** txcvr, excellent rxcvr with two VFOs, passband tuning, notch filter, RIT/XIT, memories on all bands, good transmission reports on all bands, excellent appearance and working order, s/n 04199, $750. Call for copy of specs sheet. John VK4SZ, QTHR, 07 4061 3286, *johnb@comnorth.com.au*.

• **13.8 V DC, 30 A PSU** (8 x 2N3055s mounted on heatsinks), amp and voltage gauges, main switch, reset switch, LEDs, remote sockets for 25 A and 10 A requirements, call for descriptive photos and any other details, $200 plus shipping. John VK4SZ, QTHR, 07 4061 3286, *johnb@comnorth.com.au*.

• **Yaesu FL-2100B** linear amplifier, 2 US-made Cetron 572B tubes, 1200 W input, 80, 40, 20, 15, 10 m, looks good, no faults, $650.00 ONO. Peter VK4VW, PO Box 171, Caboolture QLD 4510, 075 495 8724.

• **Realistic HTX-100** 10 m txcvr, SSB and CW, 5 and 25 W output, packet ready with mobile bracket, 10 memories, mic with frequency up/down, absolute mint condn, used once to test only, original packaging, s/n 05000075, $250. Bernie VK4EJ, QTHR, 07 3205 5098.

• **Triton SB-1001 modulation meter**, auto AM-FM to 500 MHz, mains and internal battery operation, small portable size, handbook, $95. **HP1740A CRO**, 100 MHz dual channel, delayed/normal time-base, handbooks, $475. **Rotatable dipole**, 3 bands, "Spider" shape with elements mounted either side of the hub that houses the balun, mounts to single mast, tuned for 7 and 10 MHz ham bands and 5 MHz commercial, 10 m coax, $60. **Philips PM6674** universal frequency and period counter, 550 MHz, high impedance input with variable sensitivity for LF to 120 MHz, 50 ohm input 50 to 550 MHz, $190. **Audio oscillator**, 10 Hz to 1 MHz in four ranges, sine and square wave outputs, level meter, separate balanced output, 240 VAC, portable, $150. **Bird 6154 Termaline** dummy load and power meter, 25 to 1000 MHz in four ranges, 5, 15, 50, 150 watts, N type connector, portable, $130. Gary VK4AR, 07 3353 1695.

• **Hustler 5-BTV** 5 band trap vertical, 10, 15, 20, 40 & 80 m, excellent condn, $190 ONO. Malcolm VK4ZMM, 07 3298 5454.

FOR SALE SA

• **Icom IC-706** mobile all mode txcvr, HF + 6 m + 2 m, immaculate condn, in original carton, s/n 01547, $1600 ONO. John VK5KBE, QTHR, 08 8250 7259.

• **Hills 75 ft tower**, winch up, $500. **TH3 Yagi**, $100. **6 metre 4 el Yagi**, $50. **2 x 9 el h/made 2 metre Yagis**, $50. **3 el h/made 10 metre Yagi**, $30. **HF 400 W linear amplifier**, 5 spare 811 valves, $400. **2 metre valve converter, pre-amp, 6-40 amp, plus PSU**, $40 the lot. Dale VK5AFO, 08 8391 2300 or 0417 889 628.

• Deceased estate VK5KTZ. **Icom IC-745**, s/n 02181, desk and hand mics, manual, $700 ONO. **Yaesu FT726R**, s/n 3L070488, complete with 6 m, 2 m and 70 cm modules, mic, manual, $1100 ONO. **Uniden 2020** txcvr, s/n 50911231, mic, manual, $200 ONO. Contact Ian VK5QX, QTHR, 08 8250 1708.

FOR SALE WA

• **Yaesu FTV-707** VHF/UHF transverter with 50/144/435 MHz modules, as new, in original packing, manual, $400. M Thomas VK6BMT, QTHR, 08 9399 2024, or 0417 910 922 until 1900 WST.

• **Kenwood TS-790A** top-of-the-range all mode VHF/UHF satellite txcvr, s/n 0020419, as new condn, (new $3600) bargain at $2250. **Yaesu FT-726R** multi-band all mode VHF/UHF base station with 2m, 6 m and 70 cm modules fitted, satellite unit also fitted, s/n 5L260465, excellent condn, $1250. **Pac-Com TNC-320** HF/VHF packet TNC, $150 ONO. John VK6NU, QTHR, 08 9446 1345, 0412 911 230.

FOR SALE TAS

• **Icom IC-736** HF/6 m txc vr, general coverage rxcvr, built in auto ATU, PSU, as new, boxes, manuals, $2250 ONO. **Kenwood YK88SN/1** narrow 1.8 kHz filter. Icom FL102 narrow AM filter suit IC575, IC760, IC761, IC775, as new. Allen VK7AN, 03 6327 1171, 0417 354 410.

WANTED NSW

• **811-A** (four), **8877**, **4CX1000A** (possibly with bases) valves. **GAP Voyager**. **TU-2033** tuning unit for Aerocom amplifier. **UEK-2000SAT** down-converter. **Drake PS-7** PSU. Tom VK2OE, 02 4646 1024 (evenings).

• **Radio Handbook, 16th Edition**, circa 1965, by W Orr; **Hi-Mound paddle**; **Slave clock unit**, 2 PP min type. Ray VK2FW, QTHR, 02 6365 3410.

• **Old heavy valve receivers**, civil or military, working or not; **BC221** frequency meter; will pay good money for equipment. John, 02 9525 8901, e-mail *dxer@fl.net.au*. Will be at Wyong Field Day next to Castle Hill military radio display.

• **Yaesu FT-101B HF txcvr manual**, or photocopy. Andrew VK2APA, 02 4961 5095, *c9608721@alinga.newcastle.edu.au*

WANTED VIC

• Three **RCA AR88 communications receiver control knobs**, 37 mm across skirt. Eric VK3BEG, QTHR, 03 5122 2190.

• **Codan 8332** handheld HF txcvr. **AN-PRC 8A, 9A and 10A** military VHF txcvrs. Good prices paid for clean units. John VK3ATQ, QTHR, 03 9707 2110 (AH).

• **Self supporting tower, tri-band beam, rotator**, or anything that would help in setting up a permanent Scout Jamboree station, very limited funds available! Ray VK3FQ, QTHR, 03 5436 8301.

• **Racal Model RA 6217A HF rxcvr circuit diagram and manual** to borrow, purchase or copy. Lee VK3GK, QTHR, 03 9544 7368, 015 810 101.

WANTED QLD

• **FM-828s**, one each for 52, 146 and 432 MHz, price, etc. **Panadaptor Model SA-8B Type T200 service manual** (or copy), all costs paid. Gwen VK4CB, QTHR, 07 3202 7137.

• **Dow Key relays** and **SK630 valve bases**. Also **AWA M2000 radio-telephone schematic** (copy) and/or manual. Must be reasonable price. S G Williams VK4YFI, QTHR, 07 4972 9871.

• **'Giant' 5 pin valve sockets** to suit 4-65, 4-125 volves. **'N' type coax connectors for LDF4-50 heliax**, new or used. Malcom VK4ZMM, 07 3298 5454.

MISCELLANEOUS

• **The WIA QSL Collection** (now Federal) requires **QSLs**. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose

Technical Correspondence

All technical correspondence from members will be considered for publication, but should be less than 300 words.

FT-101E Fault Adjustment

The following information might be of assistance to *Amateur Radio* readers who are still operating the Yaesu FT-101 transceivers.

I have used one for years without any trouble at all and know of many amateurs who are in the same boat. One thing about them is their low cost and ease of repair if they do happen to give trouble.

I recently bought a second FT-101E with the idea of using it on Slow Scan TV. Much to my disappointment, I found it to be very unstable and I also noted that the transmit and receive frequencies did not coincide. It was relatively simple to replace an IC on the regulator board and adjust the output voltage correctly, but the other problem was a bit more difficult.

The instruction manual was of no help at all regarding the difference in transmit and receive frequencies, as was an article describing how to overcome this problem, written by G3LLL back in 1983. No doubt much has already been published on this subject but, for what it's worth, here is the method I came up with.....

1. Adjust the regulator output voltage for precisely six volts DC (VOLT potentiometer VR2).

2. Push a short length of insulated wire through the centre of the VFO socket of the FT-101E and connect its other end to the antenna terminal of a general coverage receiver roughly tuned to 9 MHz.

3. Place Tx in PTT position; Heater switch OFF; and Clarifier OFF.

4. Tune the general coverage receiver and adjust the FT-101E VFO until you hear a steady beat (note: if there is any drift, wait until things stabilise before proceeding).

5. Centralise the clarifier control to zero position and, while switching the clarifier on and off, adjust trimmer potentiometer VR3 until the beat note on the general coverage receiver does not change. The trimmer is located alongside the clarifier control potentiometer underneath the chassis.

6. Switch the Tx to MOX, and adjust zero potentiometer VR3 (located on the regulator board) until the beat note does not change while switching between PTT and MOX.

Gerry Wild VK6GW
1080 Great Eastern Highway
Glen Forrest WA 6071
ar

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

	Division Address	Officers		
VK1	ACT Division GPO Box 600 Canberra ACT 2601	President Secretary Treasurer	Hugh Blemings John Woolner Les Davey	VK1YYZ VK1ET VK1LD
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta 2124) Phone 02 9689 2417 Freecall 1800 817 644 Fax 02 9633 1525	President Secretary Treasurer (Office hours Web:http://marconi.mpce.mq.edu.au/wia e-mail address: vk2wi@ozemail.com.au Packet BBS: VK2WI on 144.850 MHz	Geoff McGrorey-Clark Eric Fossey Eric Van De Weyer Mon-Fri 11.00-14.00)	VK2EO VK2EFY VK2KUR
VK3	Victorian Division 40G Victory Boulevard Ashburton VIC 3147 Phone 03 9885 9261 Fax 03 9885 9298	President Secretary Treasurer (Office hours Tue & Thur 0830-1530) Web: http://www.tbsa.com.au/~wiavic/	Jim Linton Barry Wilton Rob Hailey	VK3PC VK3XV VK3NC
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone 07 5496 4714	President Secretary Treasurer e-mail address: wiaq@brisbane.dialix.com.au Web: http://www.wiaq.powerup.com.au	Rodger Bingham Peter Harding John Presotto	VK4HD VK4JPH VK4WX
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone 08 8352 3428 Fax 08 8264 0463	President Secretary Treasurer Web: http://www.vk5wia.ampr.org/	Ian Hunt Graham Wiseman Joe Burford	VK5QX VK5EU VK5UJ
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone 09 351 8873	President Secretary Treasurer Web: http://www.faroc.com.au/~vk6wia	Wally Howse Christine Bastin Bruce Hedland-Thomas	VK6KZ VK6ZLZ VK6OO
VK7	Tasmanian Division PO Box 271 Riverside TAS 7250 Phone 03 6327 2096 Fax 03 6327 1738	President Secretary Treasurer	Ron Churcher Barry Hill Mike Jenner	VK7RN VK7BE VK7FB
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).			

Note: All times are local. All frequencies MHz.

Weekly News Broadcasts		1998 Fees
3.570 MHz LSB, 146.950 MHz FM each Sunday evening commencing at 8.00 pm local time. The broadcast text is available on packet, on Internet aus.radio.amateur.misc newsgroup, and on the VK1 Home Page http://www.vk1.wia.ampr.org	(F) (G) (S) (X)	$72.00 $58.00 $44.00
From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.	(F) (G) (S) (X)	$69.00 $56.00 $41.00
VK3BWI broadcasts on the 1st Sunday of the month, starts 10.30 am. Primary frequencies 3.615 LSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3WI on Victorian packet BBS and WIA VIC Web Site.	(F) (G) (S) (X)	$75.00 $61.00 $47.00
1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 14.342 MHz SSB, 28.400 MHz SSB, 29.220 MHz FM, 52.525 MHz FM, 146.700 MHz FM, 147.000 MHz FM, 438.525 MHz (Brisbane only), regional VHF/UHF repeaters at 0900 hrs Sunday. Repeated on 3.605 MHz SSB & 147.000 MHz FM, regional VHF/UHF repeaters at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ@VKNET.	(F) (G) (S) (X)	$74.00 $60.00 $46.00
1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. 3.585 MHz and 146.675 MHZ FM Adelaide, 1930 hrs Monday.	(F) (G) (S) (X)	$75.00 $61.00 $47.00
146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825, 3.560, 7.075, 14.116, 14.175, 21.185, 29.680 FM, 50.150 and 438.525 MHz. Country relays 3.582, 147.350(R) Busselton and 146.900(R) Mt William (Bunbury). Broadcast repeated on 146.700 at 1900 hrs Sunday, relayed on 1.865, 3.563 and 438.525 MHz; country relays on 146.350 and 146.900 MHz.	(F) (G) (S) (X)	$62.00 $50.00 $34.00
146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs.	(F) (G) (S) (X)	$74.00 $60.00 $46.00

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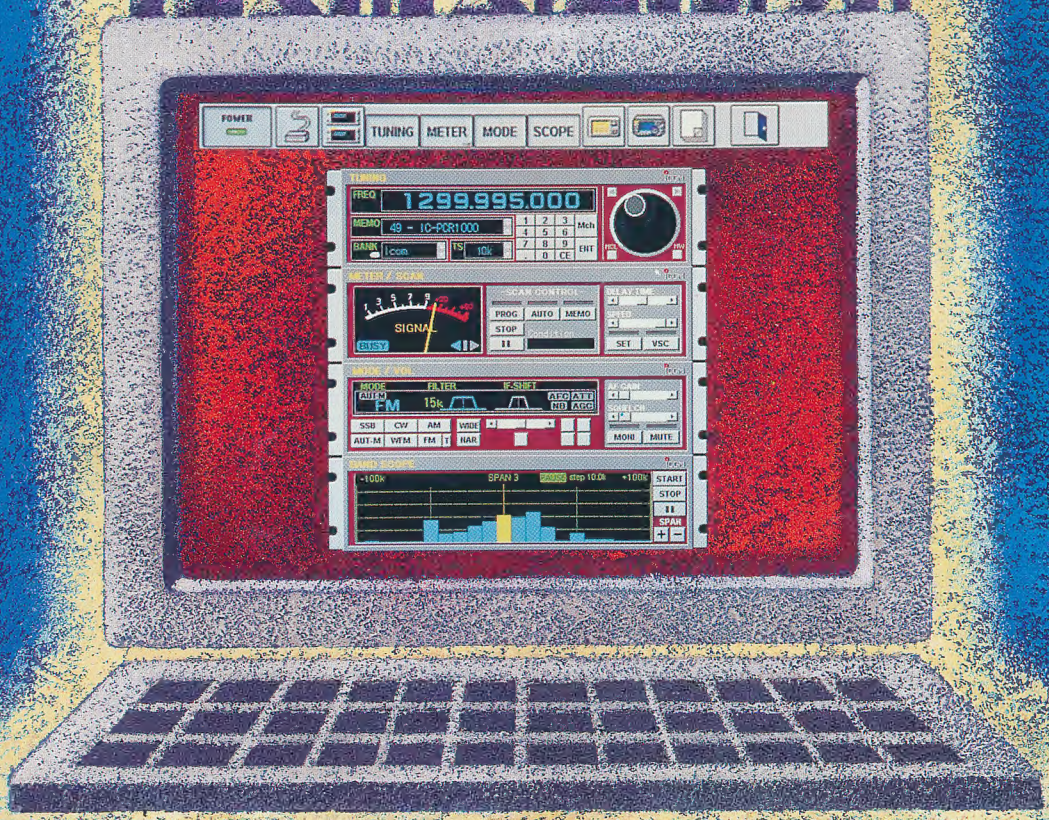

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